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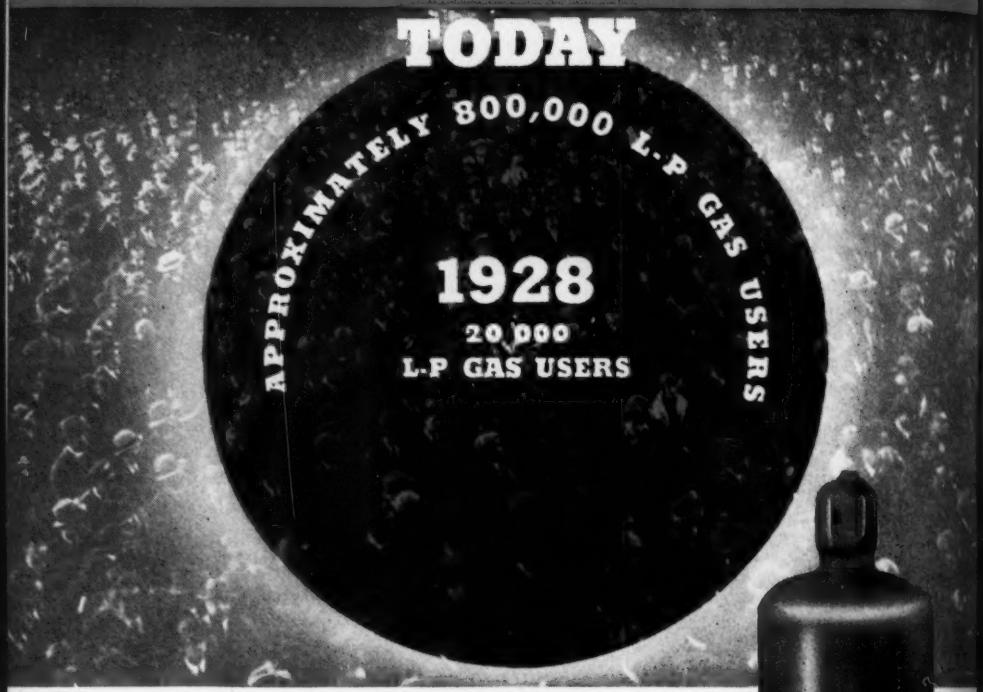
JANUARY 1942

In Two Sections — Part I



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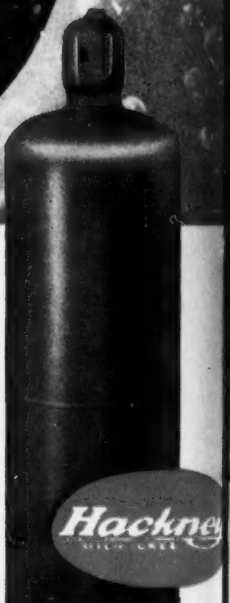

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FORT WAYNE INDIANA

BUTANE-PROPANE News

Reg. U. S. Pat. Off.

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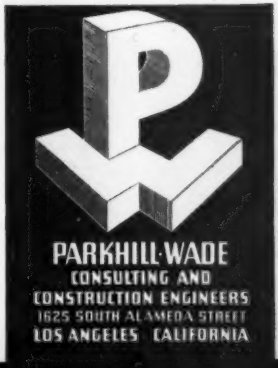

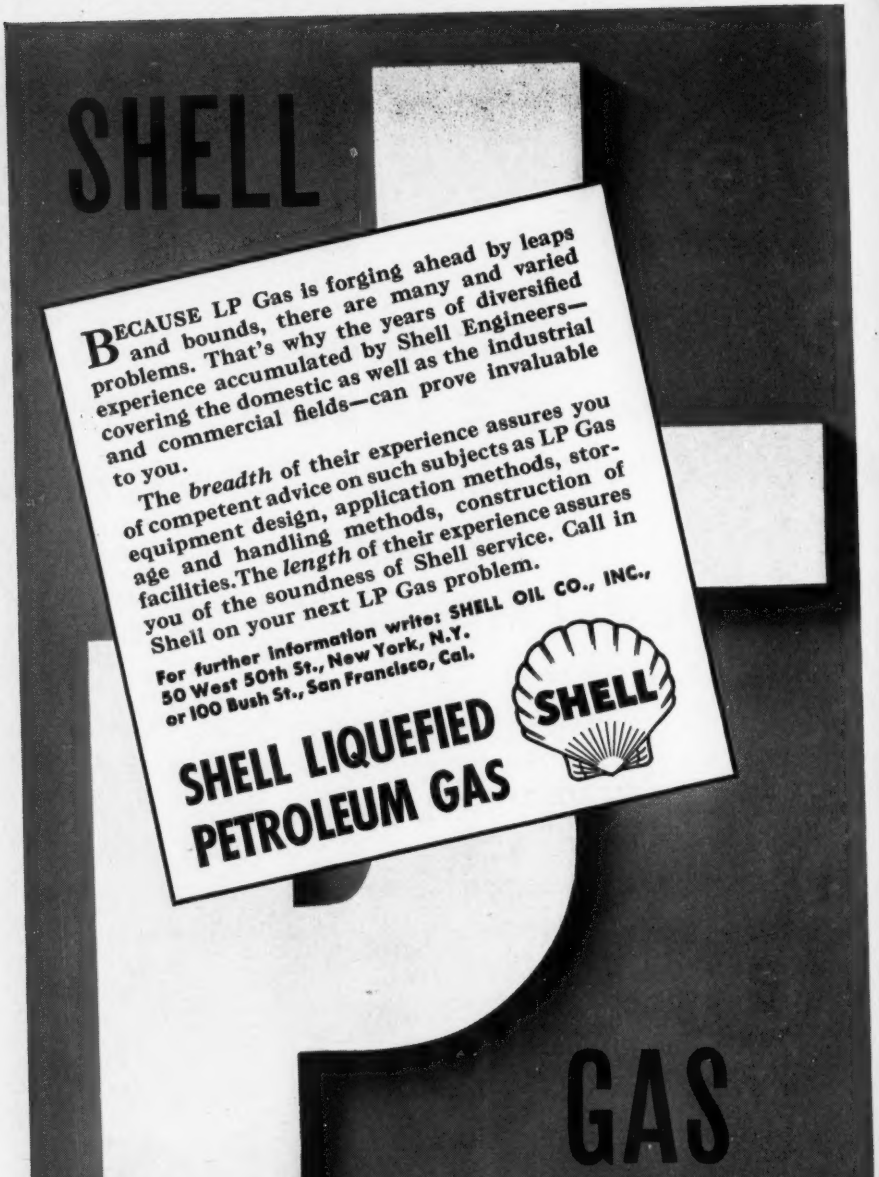
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BECAUSE LP Gas is forging ahead by leaps and bounds, there are many and varied problems. That's why the years of diversified experience accumulated by Shell Engineers—covering the domestic as well as the industrial and commercial fields—can prove invaluable to you.
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LETTERS

Gentlemen:

Do you have any information on the "coefficient of thermal expansion" of liquid propane and butane at elevated temperatures and pressures? Our problem is to determine the gravity of liquid isobutane at elevated temperatures and pressures. Can you help us?

H. W.

Iowa

The most likely sources of information for the densities of propane and butane at elevated temperatures and pressures are the measurements of Prof. W. N. Lacey, at the California Institute of Technology, Pasadena, Calif. The following information on the specific volumes of saturated liquid isobutane has been obtained from his researches:

Temp. Degrees F.	*Cu. Ft. per Lb.*
130	0.03118
160	0.03285
190	0.03506

There are slight differences in the values given for thermodynamic properties, depending upon the basic measurements and upon the method used for calculating them when thermodynamic equations are employed. However, we have obtained data at the high temperatures which correlate very favorably with those at the lower temperatures.—Ed.

•

Gentlemen:

Please tell me where I can get the following information:

1. Chart showing the flow of gas through given size orifices at given pressures.

2. Chart showing the flow of liquid through given size orifices at given pressures.

C. P. L.

Missouri

So far as we know there are no charts such as you desire, except as appear in our Hand book BUTANE-PROPANE Gases.

The following will be helpful to you:

The flow of butane, propane or mixtures of these gases may be obtained by converting values read from charts giving the flow of air or natural gas in volume measure. The flow is inversely proportional to the square root of the comparative specific gravity of the gas, with air equal to 1.00. The following relations are typical.

Flow of butane = (0.59) × flow natural gas, cu. ft.

Flow of propane = (0.68) × flow natural gas, cu. ft.

Flow of butane = (0.707) × flow of air, cu. ft.

Flow of propane = (0.81) × flow of air, cu. ft.—Ed.

•

Gentlemen:

Sometime ago we purchased your *Handbook Butane-Propane Gases* and have found the data therein to be of great benefit. We use the volume correction factor tables quite frequently and desire to obtain additional copies of them. How can this be done?

H. C. N.

Oklahoma

The only way we know for you to obtain additional copies of the volume correction tables named is to buy additional copies of the *Handbook*, as we have no copies of the tables, alone.—Ed.

•

Gentlemen:

Will you please advise from whom we can obtain insurance to cover our liability while selling propane at wholesale and retail?

K. C. B.

Illinois

If you will address the Liquefied Petroleum Gas Association at 11 W. 42nd St., New York City, you will receive complete information upon this subject.—Ed.

•

Gentlemen:

Can you tell us whether or not there is a plastic tubing on the market which can be substituted for copper

tubing for the distribution of propane gas in aboveground installations? If so will you kindly give us the name and address of the manufacturer.

D. R. D.

Virginia

We have no definite information regarding the use of plastic tubing as a substitution for copper for the distribution of liquefied petroleum gas. Local inquiries show that one or more firms are experimenting with plastics for such purposes but we do not believe there is anything on the market yet. The difficulty with the plastic seems to be the necessity of meeting its low melting temperature. It is also true that all of the present codes would have to be changed to permit its use.—Ed.

•

Gentlemen:

We would greatly appreciate your telling us where we can get some information on the effectiveness of heating and cooking with Butane gas in cold climates. We have been installing 500- and 1000-gal. underground tanks to store the butane.

We are especially interested in the extent of the development of this field in other northern states, and in authorized, scientific statements of its suitability which can be quoted in advertisements.

D. O. M.

Montana

When the outside temperature falls below 32° above zero, a system using straight butane liquid will cease to function, as butane liquefies at the point named. However, the temperature quoted above does not apply to commercial butane, which is actually a mixture of butane and propane.

Where such weather conditions exist, or may be expected to occur, the usual procedure is to have the fuel supplier mix with the butane an amount of propane (which does not cease to vaporize until the temperature reaches 44° below zero) sufficient to cause the combined fuels to vaporize below the minimum low temperatures for any given climate. The milder the climate, the smaller amount of propane needed.

In many northern and eastern states straight propane is used to meet the extreme cold experienced.

Also, artificial heat may be applied to the liquid butane to obtain vaporization without the addition of propane, provided that the supply lines from the vaporizer are protected from extreme temperatures by installation below the frost level underground or by other means. When gravity flow exists, a flame type vaporizer, or heat exchanger, may be installed in the line ahead of the pressure regulator. Another method is to first buy a storage tank in which are installed pipe coils through which hot water is forced as needed from an automatic water heater.

If you will tell your fuel supplier the lowest point of ground temperature you wish to meet, he will supply you with a butane-propane mixture that will function satisfactorily under such conditions.

It must be remembered, however, that butane tanks are constructed for lower pressures than are those for propane or mixtures of the two. Heavier construction is called for by all codes when appreciable percentages of propane are added. This fact would make it unlawful for you to add propane to tanks built for butane and would compel you to adopt some other method than adding propane for use in underground butane tanks which you have already installed. Both underground and aboveground tanks are obtainable for straight propane or butane-propane mixtures.—Ed.

•

Gentlemen:

Why not more information in your magazine about the use of LP-Gas in trucks and cars?

T. J. K.

Iowa

We endeavor to have one or more articles in every issue covering some phase of internal combustion engine conversions and the use of LP-Gas in heavy duty equipment. The index for the now closing year shows that during 1941 there appeared in our publication under the general classification of "Butane Power" 24 feature articles on this subject or an average of two every month. In addition, many short articles and news notes of the industry have been published.—Ed.

•

Gentlemen:

I am in search of a company that makes a device that burns LP-Gas to generate electricity for farm homes. Can you tell me of such a firm?

C. T. D.

Florida

The Kohler Co., Kohler, Wis., manufactures electric generating plants which operate on liquefied petroleum gases.—Ed.

• **BUTANE-PROPANE *News* welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.**

CALORIC GAS RANGES

offer more economy—better cooking results—with L-P Gas

• Caloric Gas Ranges are engineered to operate perfectly with all the popular types of "bottled" gas. All burners on these handsome ranges—including oven burners—have been thoroughly tested for satisfactory performance with L-P Gas. For example, Caloric ranges have been installed in many defense housing projects where only L-P Gas is used.

Most of the Caloric ranges feature a Harper Burner System especially designed for the efficient use of this popular gas. These economical burners give better cooking results—and tests have proved that they save up to 39% on fuel.

Caloric ranges may be ordered from 17 District Offices over the country. Write for name of the nearest Caloric representative.

CALORIC GAS STOVE WORKS

PHILADELPHIA, PA.

B. D. GEROY

Guest Editor for January

Servicing Present Customers

By B. D. GEROY

General Manager, Illinois Bottled Gas Co., Inc., Chicago

DURING this uncertain period and until such time as the liquefied petroleum gas industry is again assured of an uninterrupted supply of servicing equipment, it behooves all of us to guard against the ever present temptation to continue expansion beyond the stretching point and, through such activities, deplete our present servicing assets to a point where those assets are insufficient to properly take care of present customers.

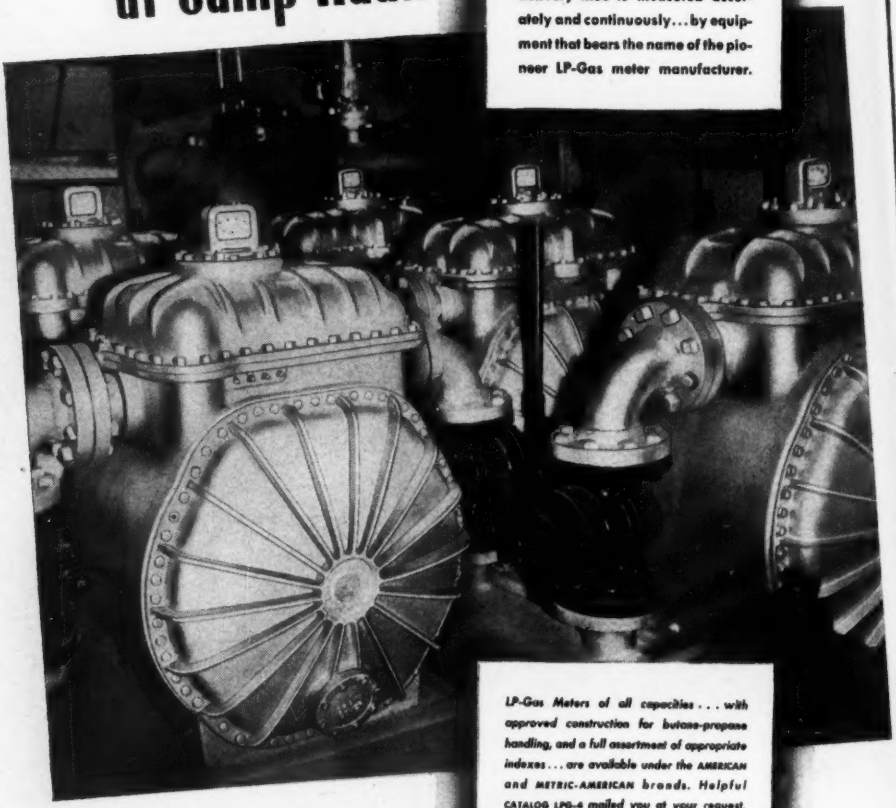
To illustrate one phase of that statement, visualize an operation involving present cylinder assets of 1,000 servicing cylinders. Let's assume that 900 of those cylinders are connected to operating equipments, leaving 100 cylinders for stock exchange servicing purposes. With the demand for liquefied petroleum gas service as active as it is, there is always the temptation to spread those few precious stock cylinders among some more customers. Unless that temptation is curbed before it is too late a serious servicing situation, involving forced interruptions in continuity of supply, is bound to develop, and once it does customers who placed faith in this industry's ability to serve will lose that faith, and when that occurs this industry will experience difficulty in re-establishing confidence after the emergency.

It appears to be the consensus of opinion that the effort that the industry's Priority Committee is expending—which effort should be backed by every operator in the industry—will ultimately secure a reasonable quantity of servicing equipment for all suppliers during the emergency. On the other hand, wistful hoping has no place in the present day-to-day operations of this industry; consequently, it behooves all of us to conserve our present servicing assets; first, to assure continuity of supply to present customers, and, finally, in the interest of further expanding existing activities.

Satisfied customers have built and will continue to expand this industry—let's not let our selfishness for increased initial sales profits over-expand our current servicing assets, thereby jeopardizing continuing satisfaction in LP-Gas.

A Battery Goes into Action at Camp Haan

In the propane plant at Camp Haan, in California, this battery of METRIC-AMERICAN Ironcase 500-B's is helping Uncle Sam keep both gas supply and accounts straight. • Each of these five busy meters (LP-Gas type) is handling better than its conservatively rated 10,540 cu. ft. per hr. capacity of propane, measured at 15 lbs. gage. The plant's propane delivery thus is measured accurately and continuously... by equipment that bears the name of the pioneer LP-Gas meter manufacturer.



LP-Gas Meters of all capacities . . . with approved construction for butane-propane handling, and a full assortment of appropriate indexes . . . are available under the AMERICAN *and* METRIC-AMERICAN *brands. Helpful* CATALOG LPG-6 *mailed you at your request.*

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MAINLY BEYOND THE MAINS

Unite or Die

The 1941 estimate of sales of liquefied petroleum gas, presented in this issue of BUTANE-PROPANE *News*, reveals an almost incredible picture of industry progress and expansion during the trying year that has just closed.

We wish nothing more than that we could point to this amazing record of growth and, on it, predict an even more brilliant showing for 1942. But only a fool could make such a prediction, and only dolts would believe it. The foul treachery of the bespectacled simian who rules the destinies of Japan decided that for us on the morning of Dec. 7th, at Pearl Harbor. The total war that swiftly and inevitably followed that murderous assault has removed from our consideration, as it has removed from the hands of all industry, any plans, any aspirations, that are not first of all directed to victory over all of the enemies of democracy, by force of arms.

The role of liquefied petroleum gas, as a domestic and commercial fuel during the war is destined to be a trying one. It is idle to attempt to ignore the fact that the very existence of the industry as such is at stake. Butane requirements for aviation gasoline, alone, are expected to reach a total of 700,000,000 gals. a year. That production will exceed by far all of the butanes produced for any purpose in any year to date. Transportation facilities to move this amount of butane would require all of the tank cars and tank trucks presently available and in service handling either butane or propane. It must be remembered that a propane truck or tank car can be utilized for hauling butane, although similar equipment designed for butane only, cannot be used with propane.

Any propane dealer or distributor who comforts himself with the idea that this is the butane man's problem is due for a rude awakening. While it is true that every increase in butane production will result in an increased production of propane, such production is valueless to the retail industry unless it can be transported to the bulk stations from which it is to be distributed.

The Liquefied Petroleum Gas Association has taken the lead in attempting to reconcile industry requirements with the imperative demands of war. It is useless for individuals to scurry around in futile attempts to do something for themselves; and

it is idle to expect that industry welfare will be set above the requirements of our vast military machine.

It can be set down as axiom number one that the United States Government will have all of its requirements met first, and that the LP-Gas industry will get only what it can show to be indispensable to the general welfare of the nation. We believe that a proper industry presentation of the importance of LP-Gas as a domestic fuel has never been made; and we believe that the fault lies not with the Liquefied Petroleum Gas Association, but with every refiner, distributor and dealer who in times past has withheld vital facts upon which to make suitable presentation.

Now the Association, with the full consent and cooperation of the Office of Petroleum Coordination, is about to send out to every known factor in the industry a questionnaire designed to speedily elicit this information. It is essential that every single form so sent out be filled in in complete detail and returned to the firm of public accountants who will tabulate the returns.

Questions may be asked that some of our lone wolves won't like to answer. Questions will be asked that will involve going through back records and compiling accurate factual information before the replies can be set down. To anyone who finds this irksome, we can only say that the decision required is whether to do what has to be done, or face the prospect of going out of business. Existing storage facilities, the location construction and capacity of every bulk plant, must be revealed. The number and capacities of all existing tank trucks, and the gas for which they are designed, must be scrupulously tabulated. The number of customers served, and the annual requirements in fuel and in materials for every distributing factor, must be made known. None of this information will ever find its way into the hands of competitors. Only the final figures will be released.

We know, from first hand information and conversations with government officials, that there exists today in Washington no conception of the scope and importance of the marking branch of the LP-Gas industry. Its significance as an essential concomitant of public health and civilian welfare is not fully appreciated, and cannot be until a factual presentation of its widespread influence can be made. Such a presentation can only be based on a complete and accurate survey such as is now being undertaken.

In this time of grave crisis there is no security save that which grows out of a great unity. Just as this is true for the nation, so is it true for the liquefied petroleum gas industry.

It is to unite—or die!

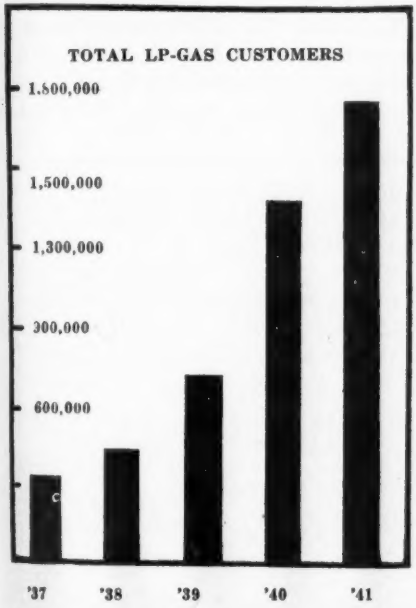
1941 *Sales Increase, 38%*

New Consumers, 380,000; Range Sales Up 60%; Total Gallonage, 432,144,000

By ELLIOTT TAYLOR

THE biggest annual gain in the history of the industry from the standpoint of liquefied petroleum gas marketed and in the number of new domestic consumers added by dealers and distributors is indicated unmistakably by the preliminary annual survey of the marketed production of butane and propane for the year 1941.

Sales of LP-Gas for all purposes during the year just closed are now estimated at 432,144,000 gals., representing an overall increase of 118,688,000 gals., or 38% over the sales for the year 1940.



The amazing growth and importance of the LP-Gas industry is shown by the gain of customers during the last five years, as revealed in the accompanying chart.

Sales of butane and propane for all industrial uses, including internal combustion engine fuel, gas manufacture and through refinery contracts with various agencies of the Government, have increased from a total of 179,438,000 gals. in 1940 to 259,438,000 gals. in 1941, representing a gain of 44.6% for the year.

The number of new domestic installations will total approximately 380,000. Indications are that marketed production of butane and propane sold for domestic consumption has increased by 38,688,000 gals. during the year, to bring the total for this use up to 172,706,000 gals., or a gain of 21.4% over the 134,018,000 gals. thus used during 1940.

In November of last year the Liquefied Petroleum Gas Association estimated the number of domestic consumers of LP-Gas (as of Sept. 1, 1941) at 1,750,000. It is apparent that this figure, if correct, invalidates the private estimates made earlier in the year which set the total of domestic users at from 1,000,000 to 1,125,000. Since no accurate figures of

the number of homes using butane and propane have ever been compiled, it is reasonable to assume that errors were made in estimates for previous years, and that the total figure set by the Association is reasonably correct.

Reports from many sources agree that due to the increasing shortages in materials, installations made during the last four months of the year fell off sharply, with the result that the total of all domestic consumers did not increase by more than 30,000 from Sept. 1 to Dec. 31. Thus the total number of domestic consumers as of the close of the year is estimated at 1,780,000.

As in last year's estimate, the method of arriving at the 1941 figures takes into consideration the average of best informed opinions of those in the industry who are in a position to have knowledge not only of the sales of LP-Gas by gallons, but also the sales of regulators, valves, cylinders and tanks necessary for both domestic and commercial installations. Taken into consideration also is the estimated annual sale in units of gas ranges specifically designed and equipped for the burning of butane or propane.

Due to the newness of the industry, the market for replacements in LP-Gas ranges remains small, and the actual number of such ranges sold is a reasonably accurate check on the number of new domestic users of the fuel. Reports from stove manufacturers to the Association of Gas Appliance and Equipment Manufacturers and representing 53% of the industry output for the first nine months of 1941 have been expanded to 100%

TABLE 1. MARKETED PRODUCTION IN GALLONS OF LIQUEFIED PETROLEUM GASES, NEW INSTALLATIONS, RANGE SALES AND OTHER 1941 FIGURES

	Total—1940	*Total—1941*	*Percent of increase over 1940*
Domestic	134,018,000	172,706,000	21.4
Industrial, internal combustion engine, gas manufacturing, and Government contracts, etc.	179,438,000	259,438,000	44.6
Total Sales	313,456,000	432,144,000	38
Number of new installations		380,000	
Total number of installations		1,780,000	
LP-Gas range sales		372,000	60
Percent of all gas ranges for 1941			15.5
20-lb. to 420-lb. cylinders		430,000	
New tank cars		300	25
Total tank cars now in use		1,400	

of the industry for the entire year, with the result that a total of 372,000 LP-Gas ranges now appears a reasonable prediction of the final tabulation.

This represents an increase of more than 60% over last year's sales in units and 74% in dollar volume. For the nine months period ending with September, ranges shipped for use with LP-Gas were 15.5% of all gas range shipments.

The sale of steel cylinders, ranging in size from 20-lb. to 420-lb. capacity has increased about 25% over 1940, bringing the total to approximately 430,000 units.

Approximately 300 new tank cars, suitable for either butane or propane were constructed during the year, with an estimated 90 to 125 more on order, but with no steel available for their fabrication. The total number of such cars now in use is about 1,400. On an average turnaround of 2½ times per month, this capacity would be sufficient to transport 420,000,000 gals. per year. Increasingly large volumes of both butane and propane are being transported by tank trucks, although the amount of such transportation available and in use is not known.

It is estimated on good authority that 80% of California's total production is moved by truck, and only 20% by tank car. The great number of army camps in California using LP-Gas is, in a great measure, responsible for these figures. It is believed that at least an additional 200,000,000 gals. per year can be transported from producing point to consumers by this method. Cylinder and drum shipments were estimated for 1940 by the Bureau of Mines at approximately 70,000,000 gals. Assuming that this capacity has not increased appreciably, it still is apparent that the sum total of transportation facilities available at the end of 1941 would be capable of moving at least 700,000,000 gals. of gas per year.

New bulk stations put into operation during the 12 months, as reported by BUTANE-PROPANE *News*, totalled only 38, as compared with 78 reported for the year 1940. Of the 38 stations reported for 1941, 25 were designed to handle propane and 13 were planned for butane or butane-propane mixtures. There has been a marked increase in storage capacity at existing stations, but no data is obtainable on the total of such capacity added during the year.

The position of the Pacific Coast as a major producing center of LP-Gas has become increasingly stronger during 1941, with an estimated total output of approximately 130,500,000 gals. for the year. This is an increase of nearly 80% over 1940, and brings Pacific Coast production, practically all of which is in California, up to 30% of the total for the entire country. The ratio for this section was 23.2% of the national total in 1940. It is interesting to note in passing that the Pacific Coast alone is now producing more LP-Gas than was produced over the entire nation five years ago.

(Copyright 1942, BUTANE-PROPANE News)

Times Have Changed, But—

Pioneer Firm Still Sells Gas

HISTORIANS of LP-Gas have an easy time of it because most of the early developments in the industry can still be recounted by eye witnesses and many of the "I can remember way back when" pioneers are still actively engaged in some phase of extracting, refining or marketing butane and propane.

So it is not surprising to find that one of the earliest plants to engage in the recovery of these gases is still in operation under the same ownership that originally organized it in 1914.

The Sloan and Zook Co. was founded in that year by Wm. J. Sloan and R. T. Zook, at Kane, Pa., for the purpose of engaging in the brokerage of petroleum products from the fields in northwestern Pennsylvania, and the extraction of casinghead gasoline from the natural gas wells on their own properties in that area.

Those were the good old days when natural gasoline was worth upwards of 25 cents per gal. for blending, and straight motor fuel sold for 36 cents at the retail pumps. Every hydrocarbon stable enough to stay in the tank was classified as natural gasoline, and the high ends of propane and isobutane were allowed to weather off merely to reduce the boiling point of the salable product to the place where it could be accepted by the gasoline trade.

By 1916 it had become apparent that there was a possibility of developing a market for the liquefied petroleum gases shipped under pressure in heavy steel containers, and that year Sloan and Zook installed compressors operating at 700 lbs. per sq. in. for condensing propane, isobutane and butane out of the rich gas from their natural gasoline plant.

All LP-Gas Bottled Together

Between 2000 and 3000 gals. a month were produced in this manner, and all of the gases were bottled together and sold under the vague generalization of propane. Most of the gas thus sold was used in metal cutting operations, although a small quantity found its way into early domestic use.

It was, no doubt, the competition that LP-Gas was giving to acetylene as a cutting fuel that induced the Carbide and Carbon Chemicals Corp. to build its first plant to engage in the new gas business. The product now widely known and used as Pyrofax, and the widespread Pyrofax organization that has been built on its success, was the result of the early stimulus of this new competition.

In 1918 Paul Zook, a brother of

R. T., came into the organization as vice-president, a position which he still holds.

A new fractionating tower, designed by R. T. Zook and erected in 1922, made possible a closer refinement of the recovered gases, and reduced the operating pressure required from 700 lbs. per sq. in. to a 350-lb. top. Isobutane and propane were then shipped separately and the monthly output of the plant was about doubled.

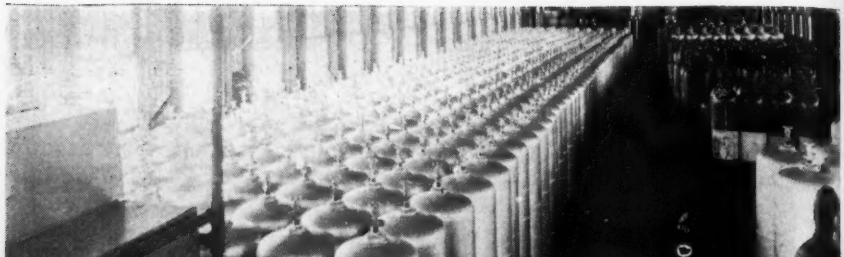
While the construction of the first tower was in the planning stage, Harry R. Johnson, the present plant superintendent, affiliated with the organization, and shortly thereafter Theodore C. Johnson joined the Sloan and Zook staff. T. C. Johnson is now assistant manager, in charge of operations.

With the addition of a third fractionating tower in 1926, straight propane, isobutane and butane were available for shipment; and plant output was again materially increased. The last of the four towers now in operation was built in 1939. At the present time this company is marketing over 500,000 gal. of LP-Gas per year. Of this, over 95% goes into domestic use through the 30 distributors that are served from the Kane plant, and the entire output is sold within a radius of 250 miles.

Practically all of this material is marketed in cylinders of various sizes and shapes from the 17-lb. propane cylinder to the 55-gal. drums for pentane.

During this long period of op-

In the cylinder filling room two manifolds of four scales each fill bottles for Sloan and Zook distributors. All butane and propane sold is bottled at the Kane, Pa., plant.



The storage and shipping room, with cylinders filled ready for delivery.

erations there has also been a considerable change in the type of cylinders used in transporting LP-Gas from the manufacturer to the consumer. There was the time when a cylinder weighing 120 lbs., empty, was used to carry 25 lbs. of propane to the user. Then a little later a cylinder with the same tare weight was used to carry a 52-lb. load. Today the cylinders in general use have a carrying capacity that is practically equal to the tare weight. This represents a considerable savings from the standpoint of transportation costs and makes possible a more dependable LP-Gas service with the handling of less cylinders.

Natural gasoline, at one time the sole interest of the organization, is now less than 20% of the total output.

Gas is gathered from a small field totalling not over 20 square miles in area, and is drawn into the plant by 14 inches of vacuum through some 50 to 60 miles of 2-in. to 5-in. gathering lines. After the extraction operation has been completed, about half of the gas is returned to the oil producing sand under 175 lbs. pressure in a recycling operation.

Cooper-Bessemer engines are used, and the original installation is still in service, operating on a 24-hr. a day schedule, as they have been since 1914.

To an industry now marketing upward of 300,000,000 gals. of fuel a year a half-million gallon operation loses its quantitative significance. But as a case history of a pioneer plant, and the oldest pioneer plant still in operation, the record of Sloan and Zook is significant. For in it is mirrored the step-by-step development in the handling of a fractious and troublesome by-product that has, in the past few years, developed it into a major industry with a potential second to none in the U. S.

How Are We Building?

A Message for 1942

By GEORGE A. BURRELL
President, Atlantic States Gas Co., Inc.,
New York City

OUR industry is a young one, making great strides at the present time, and faced with a very substantial future, we feel sure. But other industries were once young; the city gas, electric, and piped water industries, and the like; all companion industries of ours, and providing the home with what developed into essential and indispensable services.

G. A. BURRELL

These industries started as we began, or are beginning. They were small, and frequently owned by progressive individuals in the place where they started. There was interest and pride in local enterprises built with local capital by residents of the communities. Even in those cases of remote ownership the local division was and is mainly made up of local people, themselves a part of the community.

These enterprises were developed in grateful communities, long used to coal, wood, kerosene, and water wells, and which eagerly awaited and embraced the new service. There were headlines in the newspapers, editorial write-ups, and meetings that overflowed with civic pride. The mayor and council expanded over their part in bringing the new services to their communities.

Now, another new service, new to those concerned, is being brought to the people; this time to the rural population. There has not been much fanfare about the introduction of liquefied petroleum gas service for it is sold to people scattered over the countryside and it has grown unobtrusively from a few customers at the start in any one place, and with a subsequent gradual acquisition of them. The capital investment has expanded as the customers have been secured. A huge investment was not necessary before the customers were obtained. So quietly has the industry expanded that the largest rural monthly in the United States only took cognizance of it after 1,000,000 rural families were receiving the service.

And our rural population is receiving the service just as eagerly as in former days the cities received piped gas service.

Now, it appears to me, is a good time to take a little stock of our future and see if we can apply some of the lessons we have learned from the former exploitation of

widespread existing utility services.

We start with one advantage. We are not a monopoly. People distrust monopolies, even though many businesses are founded on monopolies that are not apparent—those granted by the Patent Office. We sell our product just as gasoline, fuel oil, sugar, potatoes, and the like, are sold; in free competition with other liquefied petroleum gas companies, and we all struggle in the "American Way" for a share of the business. Thus we are free of certain regulatory bodies which govern the utilities.

Now, what can we do in these, the formative years of our industry, to maintain it in public favor? How can we avoid the mistakes of our predecessors so as to keep our industry in private control and under private incentive, and with as little harassing Government regulation and political interference as possible?

Good Service Makes Fast Friends

First, I believe that we should start right at the source of our business—our customers, and render such good service to them that they will become and remain our fast friends. Here is where our strongest ties can be made, and where our strongest defense can be erected against groups who will see, in some or many cases, in this young and growing and thriving industry, an opportunity for excessive taxation, political advancement, subversive labor union activity, and oppressive Government regulation.

We must watch our financial record, our rates, and our service to our customers and conduct our business so circumspectly that those communities in which we work will respect us and feel that we are giving honest value for their dollars and good will. Any effort and funds we expend to tie our customers closer to us, to render them good service, to go out of our way to furnish them more than they bargained for, will repay us a hundred times in honest support which they will tender us.

Employes Play Important Role

The salesman who calls at a customer's home is the "Company," as is the service man, the meter reader, the tank truck driver and the home service girl, and they must be inoculated with the idea of service. Rural people are particularly friendly to calls by company representatives, once their reserve has been broken down by becoming a patron of the company's wares. They have discarded the coal and wood stove, the oil stove, and frequently an electric stove, and are delighted with their new gas appliance and gas service. Thus, an asset greets us in every new customer we secure, that only awaits our development of it. Once developed, our greatest care should be that we watch this asset and hold it.

So far, I should say, the financing of liquefied petroleum gas companies has been clean, and capable of withstanding inspection. Largely the industry has grown from relatively small investments, and has earned much of its own new capital, as it advanced. Doubtful stock

promotions have been few, if any.

Our companies should become an important part of the communities in which we operate; we should support all legitimate civic enterprises, and interest ourselves in them, and take an important part in them. In practically all cases our headquarters are located in small centers and it is not difficult to identify ourselves prominently with worthwhile movements in them.

We have our competition—coal, and oil and electrical companies, and competing liquefied petroleum gas companies, and this is as it should be. No truer phrase was ever coined than "Competition is the life of trade." Thus, America has been made great. Competition is harassing and irritating and even destructive, but it keeps us on our toes. It made the automobile better, streamlined and speeded up trains, improved grocery stores; and the like; and it will improve our service and immeasurably help our business and weed out the weak and unfit, as it has always done and should do.

The Industry Has Clean Record

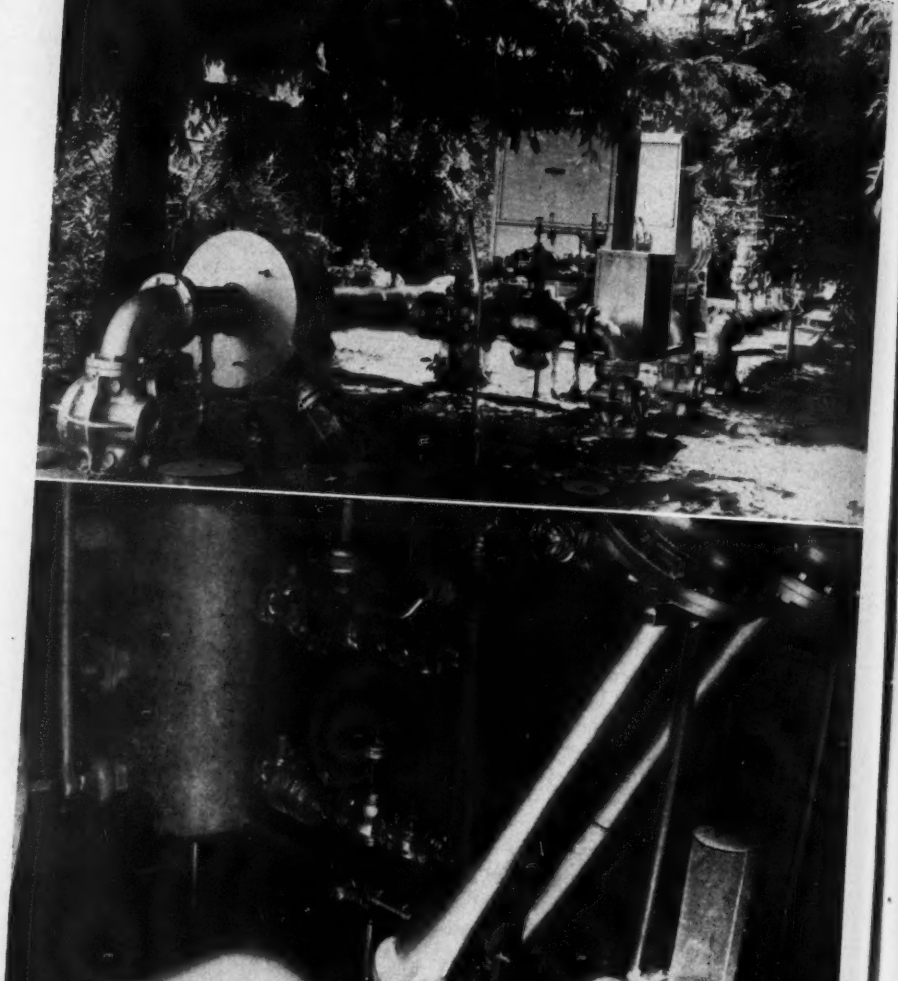
I know of no combinations in restraint of trade in our industry —no illegal agreements, oral or written, between companies about the sale of equipment and appliances. There should be none, for the moment we make them we run afoul of the laws of our country, and build trouble for ourselves.

We should interest ourselves intently in the legislation of our Government, for more than one pressure group has had legislation enacted for its benefit, and to the detriment of other groups in an industry. In every legislature there are those who can be reached for purposes of their own private gain, but also in every such group there is a preponderance of honesty and fairness. These members should be kept acquainted with our activities and problems, so that our competitors, should they try it, cannot persuade our governing agencies to pass unfair laws that are inimical to our progress.

Services Cover Wide Range

There are different methods of operating our businesses; two drum, one drum, self-service, underground tank, tank truck, cylinder truck, and gas sales by the pound, or by meter, and companies operate over restricted areas, or over large ones. There are direct customer companies and those operating through dealers, and companies which use both methods. This is all as it should be for from a multitude of people come a great variety of ideas in a mass attack on a common problem, the serving of liquefied petroleum gas in the most economical way, and to the greatest satisfaction of the consumer.

As the years roll on the industry will shake out undesirable operating methods and adopt those that have proven to be the best. But always private initiative will develop new ways, and the industry will be assured of holding its place. This again, is part of the "American Way," a way, by the way, that we are entering upon a great struggle to defend.



The Palo Alto Standby

ABOVE (left front): Butane-Air to natural gas diffuser. In background—meters and regulators. BELOW (right, on slant): Heat exchangers. Center—vapor regulators. Left—surge and super-heat tank.

Standby Capacity to be Doubled At Palo Alto, Calif., Plant

By JOHN V. SCHWAFEL
Gas Engineer for the City of Palo Alto, California

THE butane-air gas plant used by the city of Palo Alto, Calif., gas division, was originally designed in 1934 to level the peak daily flow of natural gas delivered to the city distributing system, when the wholesale billing was on a maximum demand and commodity charge basis. This plant was successful to the point of effecting a more favorable wholesale purchase rate.

The original plant was quite small and was an experimental type. It produced such satisfactory results and the runs so generally successful that the facilities were soon enlarged. The original plant was constructed in an area which was especially suited to experimental purposes. The diversity of types of consumers in this particular neighborhood gave an excellent opportunity to check results.

The present plant is more than twice as large as the original plant, and is situated adjacent to the municipal electric power and water plant. This change in location was made to effect a reduction in operating cost by utilizing the personnel of the electric plant for 24-hour observation and operation.

At present the butane-air plant is used as an auxiliary to the natural gas supply.

The city is planning to duplicate the plant in the center of a newly developed area to better guarantee a continuous supply of gas to the expanded system and future additions proposed in this area.

The standby plant at present has a maximum capacity of 1,000,000 ft. a day when the combined daily flow approximates 3,000,000 ft. This maximum output is about 30% of the total flow for any one 24-hour period, and varies with the load. The control instruments are ratio flow "stabilogs." Once the butane-air ratio and the butane-air to natural gas ratio is set at a predetermined percentage of the total flow, these "stabilogs" maintain that percentage regardless of the variations in the flow.

Use Diffusers in Mixing

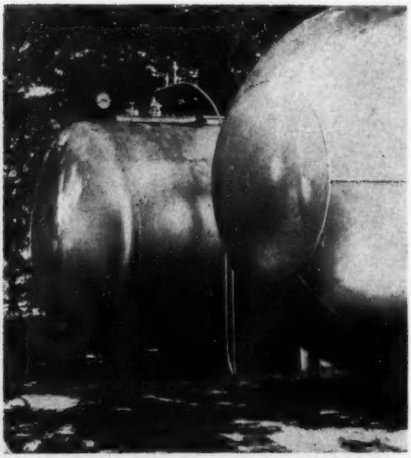
The process employed is the mixing of the butane vapor and the air through a diffuser of the city's design. In the next step the butane-air gas is mixed with the natural gas in another diffuser before being discharged into the distributing mains. Air is stored in two 10,000-cu. ft. holders.

Liquid butane is fed through a regulator into heat exchangers which are supplied by water at 130° F. The vapor discharged by

the heat exchangers is fed through a balanced valve regulator to the diffuser, where it is mixed with air controlled by a similar regulator for delivery to the system. All measurement for control of all the gases is through orifice meters. These meters are used because of the flexibility and adaptability to rapidly changing conditions.

An average heat value of 1230-1280 B.t.u.'s per cu. ft. is maintained in the butane-air gas supplied to the system. The natural gas to which the butane-air is added has a heating value of 1115 B.t.u.'s per cu. ft. Burner characteristics of this mixture of butane-air and natural gas approximate those of natural gas. Utilization experience has been exceptionally good.

The plant is 100% automatic and is equipped with alarms on all vital points. Alarms are installed on the high pressure and low pressure lines of natural gas, air flow, vapor flow, low B.t.u., and hot water supply lines.



In the foreground is one of the two 10,000-cu. ft. air storage holders of the Palo Alto, Calif., standby plant, and behind it stands the 15,000-gallon liquid butane tank.

Liquid butane is brought to the present butane-air gas generating plant in tank trucks and stored in a 15,000-gal. tank. The new plant will have railroad siding facilities.

The personnel of the department is L. Harold Anderson, city engineer in charge of all utility operations; John V. Schwafel, in charge of gas operations; Max B. Lawson, distribution foreman, and Cecil A Lasch, chief operator.

Special Meeting, L.P.G.A., New Orleans, Jan. 9

The Liquefied Petroleum Gas Association has called a meeting for Friday, Jan. 9, at the Roosevelt Hotel, New Orleans, inviting all parties interested either in propane or butane to meet with Government representatives.

The objective is the discussion of plans for the use of butane in aviation gasoline. It is feared that limited tank car and tank truck capacities may become the bottle neck that will seriously affect propane deliveries, too.

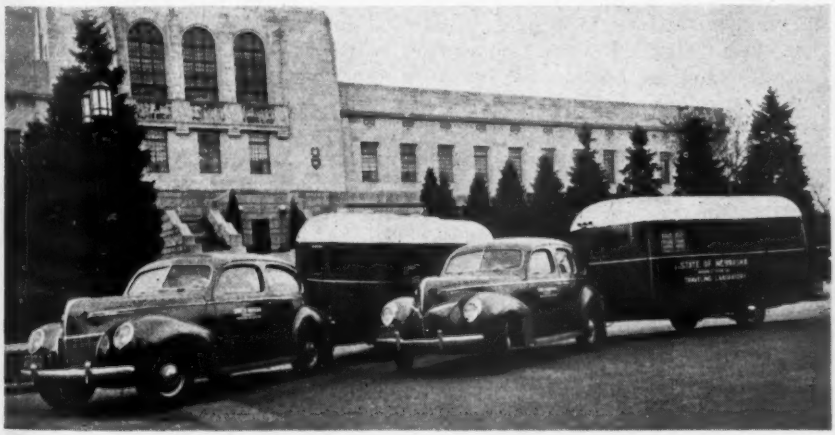
The Association, in its desire to have everyone in the industry attend who possibly can, states that, "The future of your business is at stake."

Nebraska Uses Propane Gas In Traveling Laboratories

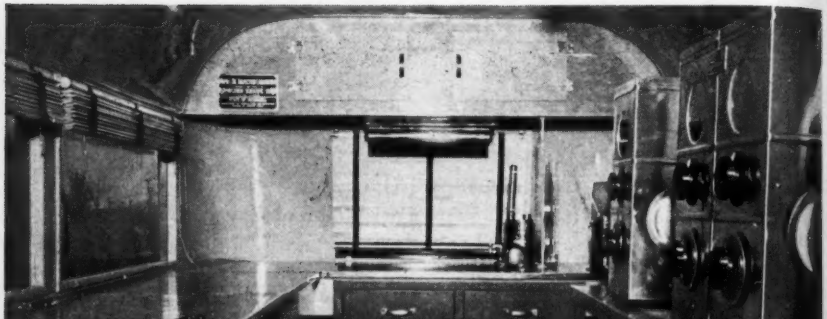
By J. A. AINLAY
Chief, Division of Motor Fuels, State of Nebraska,
Lincoln, Nebraska

NEBRASKA has what we believe to be one of the best petroleum inspection systems in the United States. It is used for testing gasoline, kerosene and other fuels sold to the public at retail outlets, and consists of a main laboratory in Lincoln, five sub-laboratories located at strategic points over the state, and two traveling laboratories. The last consist of trailer house cars and are moved from town to town.

While we are not running any tests on liquefied petroleum gases, it is an interesting fact that each of the traveling laboratories is equipped with four distillation stills which are operated by propane, and without which we would frequently have great difficulty to make tests. Most gasoline distilling equipment is provided with electric burners for heating purposes, but it would require a heavy amount of current to operate four separate stills on each laboratory and electricity is not always available in the locations where we are set up. So we solved our problem by in-



Nebraska's two traveling laboratories which do their share of making from 60,000 to 70,000 gasoline tests annually.



Interior of one of Nebraska's traveling gasoline testing laboratories which uses propane for distillation stills. Distillation units are located on the right side; flash testing equipment at far end; ice chest at left, and propane cylinders in the asbestos box under the drawers at far end.

stalling gas burners and propane.

Each laboratory carries two 5-gal. cylinders of gas. Under ordinary operation, one tank of LP-Gas will supply our stills for from two to three months, but we carry two on each trailer so that one is always available while the other is away for refilling. These cylinders are kept in an asbestos-lined cabinet at one end of the laboratory and are placed there from the outside as a precaution against accident.

Nebraska is divided into seven districts, with an inspector in each one. When a laboratory enters an inspector's territory he accompanies it during the two weeks which is usually allotted him. The inspector picks up the samples from the stations and takes them to the laboratory, located at some central point in each town, where the analyses are made by two chemists.

By this method we are able to test approximately 50 samples per day for each traveling laboratory. This work is supplementary to the testing done at the main laboratory and the branches. Each traveling laboratory, in addition to the four distillation stills which are gas-fired, has equipment to make flash points, fire points, cold tests, gravity tests, and such minor equipment as is customarily used in testing petroleum products.

Our stationary and traveling laboratories are testing between 60,000 and 70,000 samples per year, with most of them taken at the point of sale throughout the state.

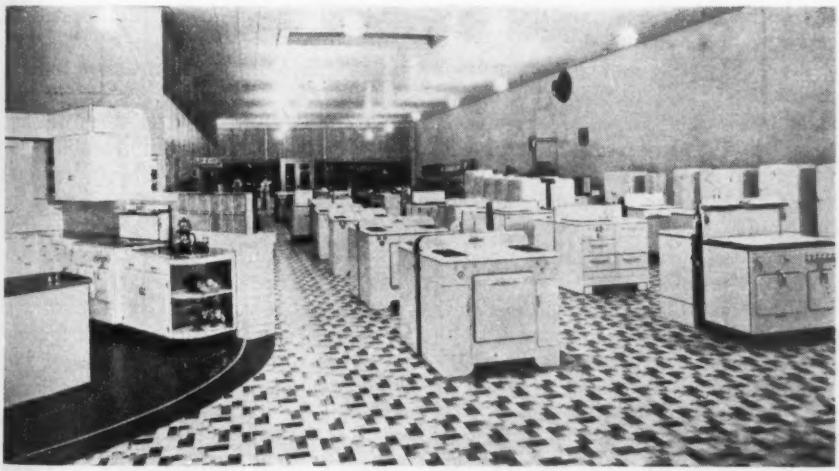
Profits From Direct Sales Pay Demonstration Costs

THE value of cooking demonstrations as an aid to salesmen in closing sales has been proven very effectively by the work of Helen Hirst Fagan, home service director of Fannin's Gas & Equipment Co., Phoenix, Ariz., distributors of LP-Gas and appliances.

Mrs. Fagan has been with the company almost six years and has given instruction on food preparation to many groups of people of all ages from numerous organizations and affiliations.

Since 1929 she has worked with appliances, or sold appliances. She prefers to call the gatherings "food demonstrations" rather than "cooking schools" because people come in order to get new ideas about food preparation.

By working on a salary basis so the salesmen feel perfectly free about calling upon her to assist them in closing sales, any possible friction is eliminated. New salesmen are given the benefit of her experience in learning the selling features of the modern butane range, and may bring in prospects for special demonstrations. This has frequently resulted in the im-



The showroom of Fannin's new store, which features LP-Gas appliances. The demonstration kitchen at left is the one which appears in larger detail on the next page.

Helen Hirst Fagan, home service director, makes some preliminary preparations for a demonstration in the completely appointed kitchen department of Fannin's Gas & Equipment Co., Phoenix, Ariz.

mediate signing of a contract, and the department has more than paid its way from direct sales.

Mrs. Fagan keeps a guest book and this frequently provides the salesmen with names of prospects for butane systems and appliances. In addition to demonstrations, she follows up range sales, helping the housewife to become familiar with the use of the range, the broiler, and all controls.

Since Fannin's moved to their present location in September, 1940, a program has been given every Wednesday. Prizes are awarded at the demonstrations to those who bring the most guests. One woman brought 21 guests. A special cake was prepared in this instance. The prize is usually valued at $2 or $3. Mrs. Fagan tries, however, to make the prizes secondary in interest to the valuable facts women can learn about cooking and liquefied petroleum gas.

In addition to the Wednesday sessions, Mrs. Fagan issues special invitations to school groups, and cooking classes from schools and colleges. Splendid response has been received from the seventh and eighth grade classes from city grade schools.

It is felt that the younger pupils provide opportunity for one of the best forms of advertising, because they are enthusiastic about the demonstrations and help to influence family purchases. Seventy-two students attended the first grade school gathering. A total of

15 school groups have seen the demonstrations, including groups from Mesa, Tempe, Buckeye, Tollison, Glendale, Peoria, Avendal, and the Phoenix city schools. Usually, in demonstrating before the younger children, simple breakfast dishes including muffins, Swiss eggs, chocolate chip cookies, and other appetizing dishes for children are prepared. When the food is cooked, the children are allowed to eat it. In demonstrating before a grown-up group, provision is made frequently for a leg of lamb, pot roast with vegetables, or broiled steak with vegetables.

A number of nationally known home economists have appeared at Fannin's during the past years to take part in cooking demonstrations. Among these have been Jane Tiffany Wagner, formerly of Servel, Inc., and now with the Chicago Daily News; Mary I. Barber, of W. K. Kellogg Co., Battle Creek, Mich.; Millicent Atkins, of the Irradiated Evaporated Milk Foundation; Ruth Kruger, Central Arizona Light and Power Co., and Carl Sorby, Geo. D. Roper Corp.

The demonstrations are informal in nature and the guests are encouraged to ask questions about food and home management. This same type of demonstration is planned for the future but the program will be extended into church, community, and home-makers' groups.

Mrs. Fagan is continuously cooking something on the demonstration range so that when prospects come in to investigate butane systems she is ready to show them how the range performs.

Butane Does Emergency Job At Arkansas Cotton Oil Mill

During the recent flood in Arkansas, the high-pressure natural gas line serving Fort Smith, Ark., was broken, causing a shortage of gas in that city, which was almost disastrous to the Fort Smith cotton oil mill, because of the many thousands of tons of cotton seed on hand at that time.

T. T. Burgess, of the Arkansas Butane Co., Inc., Little Rock, Ark., was called into service, and changed over the equipment of the mill from natural gas to butane gas, and the operations of the mill were continued for the four and one-half days that were required to replace the natural gas line. The consumption of butane for this period was 12,000 gals., which was shipped in by tank car from Oklahoma.

The officials of the cotton oil mill were very grateful to Mr. Burgess for his assistance to them in this time of emergency and this experience has directed their attention to the importance of liquefied petroleum gas for temporary or regular use.

CALENDAR

January

Society of Automotive Engineers—Annual meeting and engineering display—Book Cadillac Hotel, Detroit, Jan. 12-16.

Louisiana Butane Dealers Association—Baton Rouge, La., Jan. 16.

L.P.G.A. Eastern Section—Annual Midwinter Meeting. Tentative headquarters: Hotel Pennsylvania, New York City, Jan. 23-24.

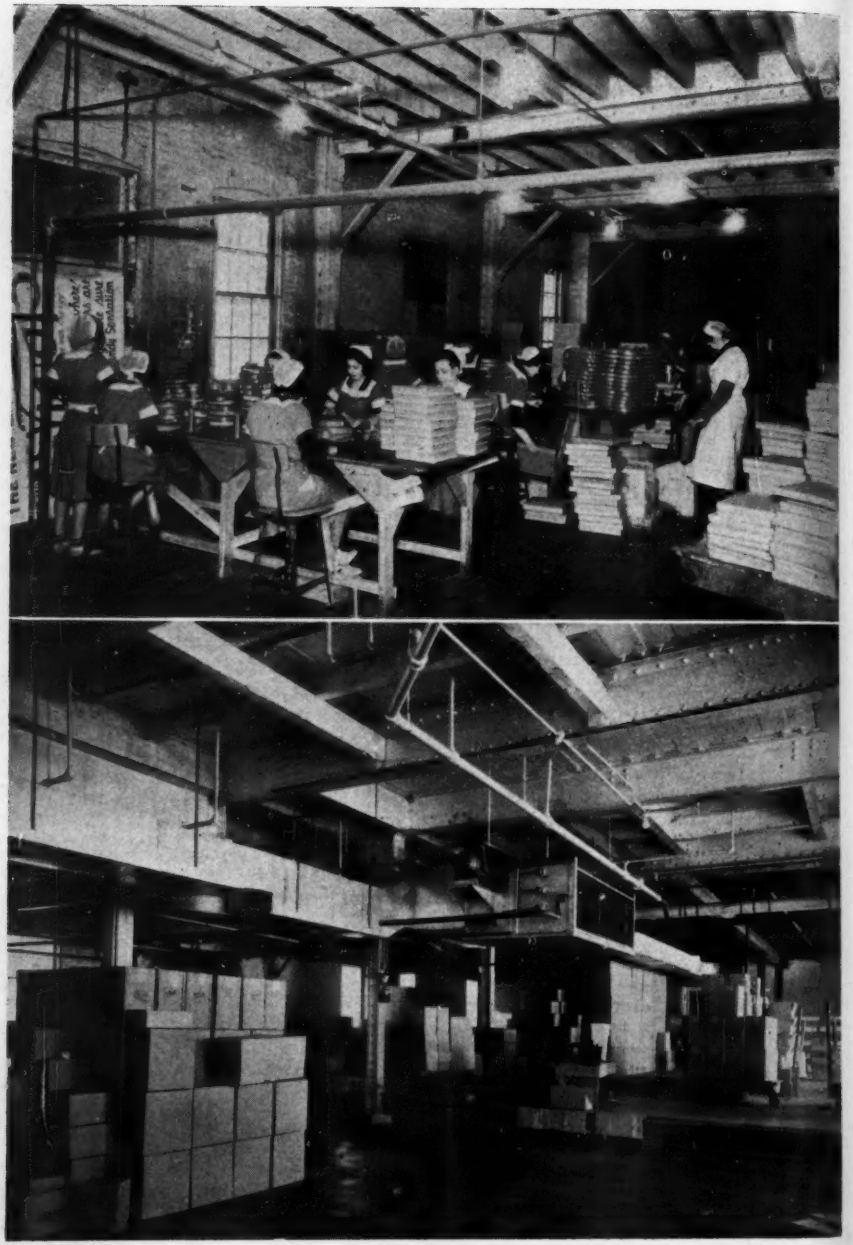
February

L.P.G.A. Annual Convention—Muehlbach Hotel, Kansas City, Mo., Feb. 23-25.

May

Natural Gasoline Association of America — Mayo Hotel, Tulsa, Okla., May 13-15.

L.P.G.A. Southern Section — Mayo Hotel, Tulsa, Okla., May 25-27.



Air Dehumidifiers Improve Candy Packing and Storing

BY using liquefied petroleum gas in the operation of 10 silica gel type air dehumidifiers, Edgar P. Lewis & Sons, Inc., large-scale manufacturers of candy, Malden, Mass., is improving the appearance of its product and making substantial savings in time and materials.

The consistent maintenance of optimum humidity conditions is of the utmost importance to this plant, as it is to many manufacturing plants, large and small, throughout the country, in order to avoid production shut-down, to improve the quality of the product, or to speed up production by the reduction of the time required for drying, as accomplished by an atmosphere of low humidity.

On an average working day two tons of water are removed from the air in the production and storage rooms of the candy manufacturing plant. This moisture is removed by the dehumidifiers operating independently of any of the other existing functions of air conditioning, being controlled directly by humidistats located in the conditioned spaces.

In the above installation, the 10 dehumidifiers, manufactured by the Bryant Heater Co.,* Cleveland, O., have a total input rating of 3,275,000 B.t.u. per hr., requiring a plant capacity of 32.75 gals. of LP-Gas hourly in order to handle the load when all of the units are operating simultaneously.

The largest unit is capable of drying 5000 cu. ft. of air per minute. The air to be conditioned first passes through beds of silica gel, a material especially prepared to absorb moisture in great quantities. Next, the dry air passes around finned coils carrying well water at 50°F, and is cooled to the right point. Liquefied petroleum gas is used to heat and dry the silica gel beds after they have absorbed their fill of water. While one set of silica gel beds is being dried, the air being conditioned passes through other beds which have been previously "reactivated." Operation is continuous and fully automatic. Both the temperature and humidity desired are simply set on the thermostat and humidistat in the air

OPPOSITE PAGE (top): This packing room, with 7000 sq. ft. of floor space, is one of the rooms served by the LP-Gas-operated silica gel dehumidifiers.

BOTTOM: In the storage of fine candies awaiting shipment, relative humidity can raise havoc. Dehumidifiers have been installed in this storage room to guard against any impairing of quality or appearance at this point.

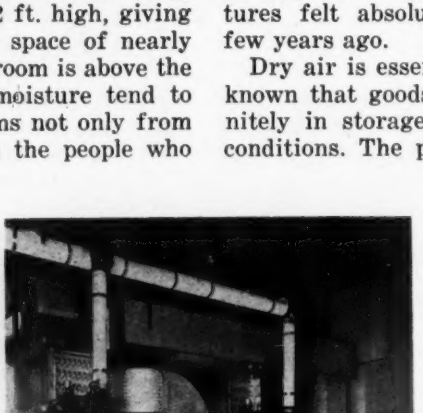
* A detailed story of dehumidifiers, entitled, "Gas-Fired Air Conditioning," appeared on Page 19, GAS Magazine in March, 1941.

conditioned space, and the equipment does the rest.

The dehumidifiers are located in two huge rooms, each 145 ft. long, 48 ft. wide, and 12 ft. high, giving a total plant floor space of nearly 14,000 sq. ft. One room is above the other. Heat and moisture tend to come into the rooms not only from without, but from the people who work therein, the electric lights, and the motors and blowers which are part of the machinery in the rooms. All of the candy that comes into the rooms enters at a temperature 20° higher than the temperature at which it is stored and handled.

An interesting point reported by engineers of the Lewis organization is that low temperatures previously believed to be required in the candy business are not always necessary. Many production troubles which had been attributed to too high temperatures ironed themselves out when the proper relative humidity was maintained. Then, too, it has also been found that a higher temperature with properly controlled humidity is sometimes a condition more desirable to certain processes of candy making than those low temperatures felt absolutely necessary a few years ago.

Dry air is essential because it is known that goods will keep indefinitely in storage under controlled conditions. The plant is controlled at 40 to 45% relative humidity and 65 to 70° temperature. The optimum ranges of temperature and humidity may vary somewhat for different types of goods, but within the limits noted above the plant operates continuously and comfortably.



These two tray-type silica gel machines operate in conjunction with a 15-ton refrigeration unit to maintain the storage space at 66° F. with a 50% relative humidity, independently controlled and maintained.

Executives and engineers of the company have recognized a fact that has long been in the minds of many men in charge of production—that there are two distinct and varying features in air conditions which seriously affect candy, both in production and in storage—temperature and humidity. These two are dependent somewhat, one upon the other, but are in no way tied one to the other. Because of

this fact they must be treated as independent factors and cannot be satisfactorily disposed of by attempting to control one without controlling both.

In regard to the results so far attained by the use of the dehumidifying unit, the company executives say: "The unit as installed has worked out most satisfactorily . . . With reference to reduced spoilage, production peaks and improved products, it stands to reason that if one can so accurately control the steps of manufacture, the product will be nearer perfection than when part of the process is left to the mercy of the weather. Where control is automatic, it takes much of the chance out of the process of candy making . . . The improvements all the way down the line can be computed in less scrap, better looking goods, and no lost time."

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Propane Will Aid Ontario In Averting Gas Shortage

The Dominion Natural Gas Co., Ltd., Brantford, Ont., is completing plans to avert a repetition of last winter's natural gas shortage in Ontario by supplementing its available natural gas supply through the construction of a propane plant near St. George, now nearing completion, with auxiliary compressors at Blackheath and Caledonia.

The St. George plant will include propane storage of 2,000,000 imperial gallons, a 225-hp. compressor unit, and propane vaporizing and mixing equipment. The Blackheath and Caledonia compressors will transport natural gas to the St. George plant for mixing with propane. The Blackheath plan will include a 135-hp. engine with compressor and the Caledonia plant a 250-hp. engine with compressor. The St. George plant will have a capacity of 6,000,000 cu. ft.

Propane gas will also be used to supplement the natural gas supplied by the Dominion Natural Gas Co. to the United Gas and Fuel Co., in Hamilton, propane being brought from Illinois in tank cars and the conversion process carried out in the Hamilton coke-oven plant.

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Butane-Equipped Farm Homes Built Near Brawley, Calif.

California farm laborers near Brawley, Calif., have moved into 44 new butane-equipped homes which were recently constructed by Uncle Sam at a cost of $97,000, according to reports. The houses, 30 single family and 14 double family dwellings, are each equipped with butane burning ranges and will be used as permanent residences by the farmers. Rent is $9 a month, including gas and electricity.

Migrant farm families may rent tents for 10 cents a day. Occupants of the new houses are permanent agricultural workers, whose past earnings and records of employment have been investigated. The modern community boasts of a workshop for the men, a completely modern hospital, community bath houses, community laundries equipped with tubs, hot and cold water, ironing boards and irons.

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Wilcox Service Enlarges In Red Lake Falls, Minn.

Wilcox Service, Skelgas dealers of Red Lake Falls, Minn., have found it necessary to add more space to their company offices. The addition to the south side of the present building will have a 30-ft. frontage, with a 40-ft. depth, and will conform in appearance to the rest of the building.

What's Up-Hill Fighting If the Dealer Wins?

By HARRY L. SPOONER

"LIKE the pioneers in any line of business," says Earl Vance, proprietor of Vance Maytag Co., Princeton, Ill., "we had a rather difficult time in starting in the bottled gas business. But, like the pioneer who sticks to his object, we have built up the business to where it is now profitable. We suffered a short set-back, especially in the sale of appliances, when the REA program was established in our territory, but the reaction has already started and we are confident that the sales of bottled gas equipment will soon regain volume and go ahead of what was lost."

Earl Vance, proprietor of Vance Maytag Co., Princeton, Ill.

Mr. Vance entered business in Princeton in 1926 with the Maytag line of washing machines. Two years later he added bottled gas appliances. Ranges were the first type of appliances handled. Three of these were ordered the first year, a white one, a bright blue one, and a red one. The first two sold but the red one stuck. Mr. Vance finally disposed of it to a relative who had his kitchen finished in red. This stove is still in first class condition.

"We had a hard time trying to sell people on the bottled gas idea," says Mr. Vance. "They couldn't believe it to be true that gas could be put in drums and shipped. It was beyond their comprehension that bottled gas could do the things claimed for it. It was not until around 1931 that the majority came to accept the claims for bottled gas. From then on it was somewhat easier, but during the early years we averaged only about 10 installations a year.

"Our problem was accentuated by the fact that natural gas comes close to the city on two sides and that the city had an artificial gas concern, with both of which we came into competition. We also had the competition of electrical service in the city and in part of the surrounding territory. Later we

had three other bottled gas dealers in the city while one or two others from other towns got into our territory.

"In spite of this, in 1936 we made 43 installations, and in 1937 we made 37. Then came the REA, covering electrification of all the territory where we do business. In 1938 our installations dropped to 22. In 1939 they raised to 30. Last year they dropped again to 20. This year so far we have held our own.

"In the meantime, however, we had increased our load by the sales of water heaters and refrigerators. Our peak was in 1939, when it amounted to 59,100 lbs. Last year it dropped to 55,000 lbs. This year so far indicates it will reach our peak of 1939."

Uses Action Picture Advertising

The Vance Maytag Co. does not put all its promotional eggs in one basket but uses several kinds of effort. Perhaps the most effective is newspaper advertising. This follows three forms. A large display ad on ranges is frequently used. This is well illustrated with action pictures showing the operation of the main line of ranges handled, as well as a picture of the range itself. Classified ads to sell trade-ins are used nearly all the time.

"A type of advertising," says Mr. Vance, "that keeps our name prominently in front of the people of our territory and which is effective in its own purpose and in bringing in prospects as well, consists of a weekly ad featuring our deliveries of gas. The ad has an illustration at the top of two gas cylinders, underneath which are the words, Cylinder Delivery Routes. Below this is a map of Bureau county. This is divided into four sections, northeast, southeast, southwest and northwest. Below this is a schedule of deliveries, with the dates. We have educated our customers to the fact that we give only one delivery each four weeks in any given quarter of the county. It pays us to take out full loads when we deliver and in order to have full loads, we cannot go more often than once in any four weeks in any one direction. By this practice we have cut our delivery costs to a minimum. If we make special deliveries, we charge for them. Our weekly ad shows just the date we will deliver in any section. These ads are kept by customers until after deliveries are made. We have to go outside the county with a few deliveries to customers who bought from us while living in the county and who have continued with us if at all within reach. Recently we sold a range and refrigerator to an old customer now living 30 miles from here and much nearer other dealers."

Firm Has Used Direct Mail

At the present time the firm is not using direct mail. However, they have used it in the past to a considerable extent. The pieces mailed were furnished by the manufacturer of the gas range handled. With a mailing list of about 900, the territory has been pretty well covered.

Window displays are effective in emphasizing the various points of bottled gas equipment. The store

has two large windows and a display of bottled gas ranges runs constantly.

Attractive floor displays are also effective. Six or seven models of ranges and three or four models of refrigerators are constantly shown. Two or three water heaters also appear regularly.

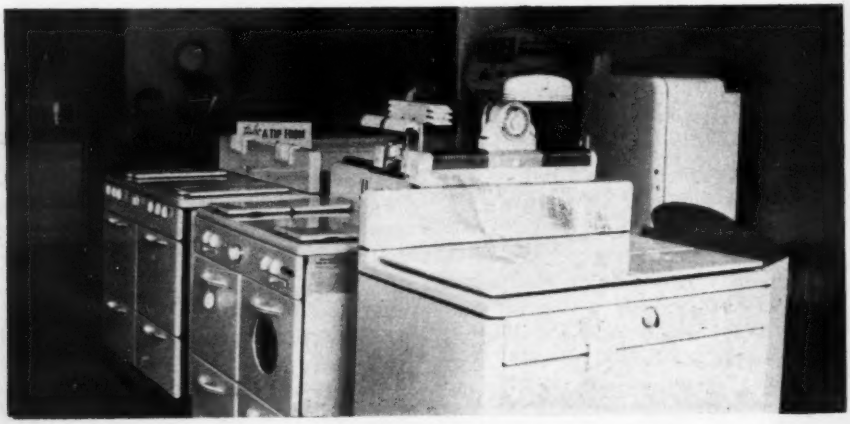
When the firm first started, customers were paid commissions for prospects. However, satisfactory results did not accrue from this practice. The practice led to much confusion. More than one individual would claim they recommended the range to the new customer. In order to eliminate this confusion and misunderstanding the company ceased paying any commissions and it has been much more satisfactory. Without this incentive, the concern has found that customers are very good about turning in new prospects.

Premiums have been used occasionally to induce the customer to buy. An extra cylinder of gas has been effective. Various types of merchandise prizes have been given, such as a sack of sugar at canning time, turkeys at Thanksgiving, etc. However, the firm is not very enthusiastic about the use of premiums.

In the pioneering days, cooking schools were held, pretty well covering the territory. Demonstrations were held at fairs, too. The cumulative effect of these various forms of promotion has been very good.

"While all these methods have helped, in this day of severe competition, there is only one method that really gets the names on the dotted line," says Mr. Vance. "That is personal solicitation. We have one man in the field selling all the various types of appliances we handle. This man, who has been with us for five years, is a real salesman.

"He has been very successful in the sale of bottled gas equipment



Part of the bottled gas range department of the Vance Maytag Co.

in explaining to prospective customers that bottled gas is faster, cheaper, and safer than electricity. He is able to truthfully tell prospects that in the time we have been selling bottled gas we have never had an explosion. We credit this to the fact that we use only the best materials for our installations, that we use extreme care in making them, and that we follow fully the manufacturer's instructions in making installations.

Local Bank Helps

"We sell a considerable number of installations for cash but the majority of our sales are made on notes. However, these notes as an usual thing, are not made to finance companies. The charges this method of financing entails are almost prohibitive to customers. Therefore most of ours are straight notes, which are handled through the cooperation of our local bank.

"We do not allow any fictitious values on equipment traded in. Our salesman is a good judge of values on used equipment and allows somewhat less than he thinks it can be sold for. He is also a good salesman of used equipment as well as of new. In the entire five years he has been with us, he has always made a little money on trade-ins.

"In the sales of gas, it is almost entirely a cash proposition. We charge gas only to those whose credit we know is perfect. In all the years we have handled gas, our losses from such sales have been practically nil.

"Up to a little over a year ago, we sold gas only in 100-lb. cylinders. For the past year and a half we have also been selling it in bucket installations of 20 lbs. each. We do not deliver small containers.

"All ranges and other equipment are sold at a price which includes all installation costs and tax. When we quote a price to a customer, it means there are no extras of any kind.

"We rather believe that the next two years will be uphill business as so many REA stockholders think they have to use all electrical equipment in order to get the maximum benefit of electrical rates and thus protect their investment. This, however, is not true. We are slowly educating them to this fact and the reaction has already started. We are getting some of these people back to using bottled gas. For cooking, gas has always been cheaper and faster than electricity and gas appliances lower in upkeep than electrical appliances. The stiff competition we are having is keeping us on our toes. We predict that when electrical users as a whole learn the difference in cost and convenience, the bottled gas appliance business will regain its former status and go ahead of anything we have had as yet."

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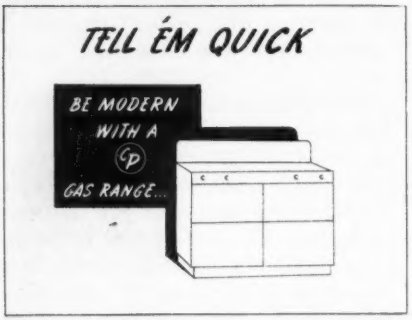
Munn Gas & Appliance Co. Is Formed in Des Moines, Iowa

L. K. Young and Nellie E. Munn have formed a bottled gas firm to be known as the Munn Gas & Appliance Co., with offices, sales and service headquarters at 1404 Keosauqua Way, Des Moines, Iowa.

The company will distribute LP-Gas and wholesale and retail ranges which burn bottled gas.

SELLING

Focused attention, directed emphasis and brevity are the essentials of effective advertising and display. Some applications are demonstrated on these facing pages.

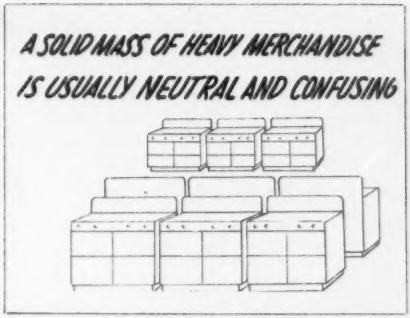


LONG MESSAGES LACK INTEREST
COOKING HAS DEVELOPED THROUGH THE AGES FROM THE SIMPLE CAMPFIRE OF PREHISTORIC MAN.. THE CRUDE OVENS OF THE AMERICAN ABORIGONE ...GUFF, MORE GUFF... HOOPLA ETC.
TO THE MODERN
GP GAS RANGE

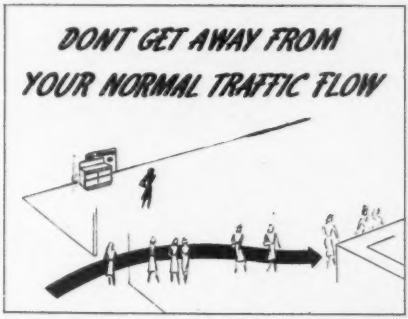
Eliminate introductions. Present the main idea directly and powerfully.

If each product is spotlighted separately, customers will remember all.

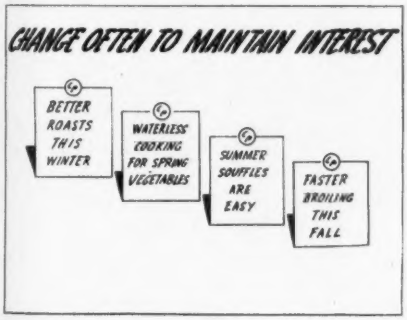
In display arrangements, point a finger at your product and say: "LOOK."

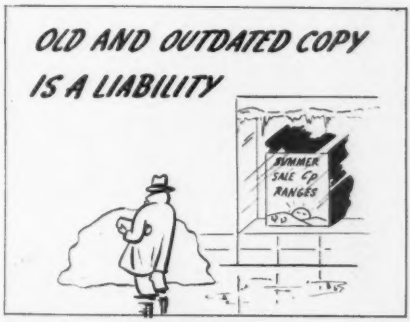


As in movies, the star of your display should stand out from the crowd.



Make it easy instead of difficult for your customers to buy your products.


CHANGE OFTEN TO MAINTAIN INTEREST
BETTER ROASTS THIS WINTER
WATERLESS COOKING FOR SPRING VEGETABLES
SUMMER SOUFFLES ARE EASY
FASTER BROILING THIS FALL



Variety is the spice of life. It is also the way to sales and profits.

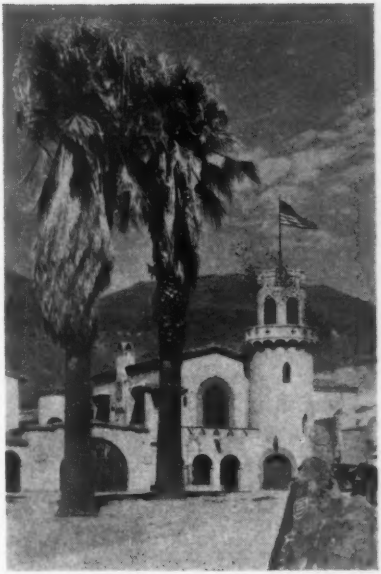
"How to Make Your Gas Appliance Displays Pay Dividends" was the title of a talk delivered last Fall by Homer Laughlin, Jr., Southern California Gas Co., Los Angeles. These sketches were used for illustrations. Though naming "CP" gas ranges, the principles involved apply equally well to LP-Gas appliances. More drawings in this series will appear in the February issue.

"Maybe with these blackouts you'll wish you bought an LP-Gas range."

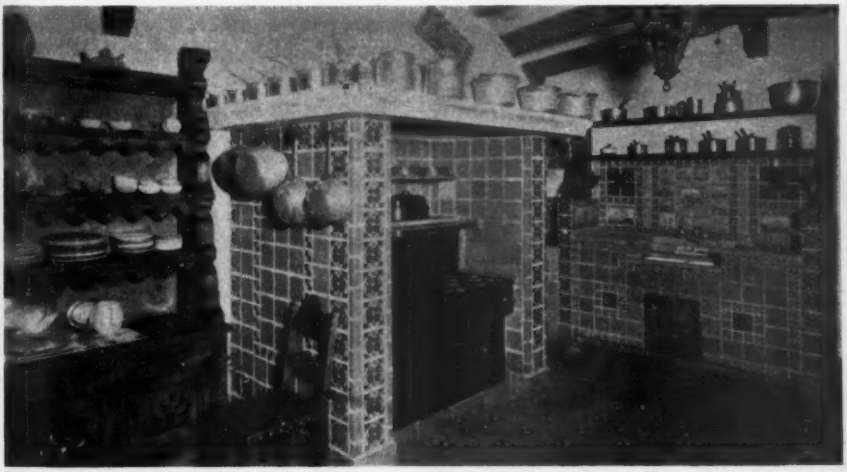
LP-Gas Serves Desert Castle

LIQUEFIED petroleum gas stored in 24 100 lb. tanks, solves "Death Valley Scotty's" domestic fuel problems at his "Million Dollar Castle," located in Grape Vine Canyon, Death Valley, California.

The original installation at the "Castle," which is jointly owned by "Scotty" and Albert M. Johnson, of Hollywood, consisted of two large LP-Gas containers. Later, 24 100 lb. tanks were installed in two banks of 12 tanks each. Each bank is connected to a common header so that half of the 24 tanks can be turned on the line at once while the other half are held in reserve. When one bank of tanks becomes empty the reserve bank is turned on and the empties are sent out to be refilled.



"Scotty's Castle" overlooks Death Valley.



The kitchen in "Death Valley Scotty's Castle" in which an LP-Gas range is used.

Propane Replaces Gasoline In Evaporated Milk Plant

By C. B. BEAULIEU
Sales Manager,* Liquefied Gas Corporation
Seattle, Washington

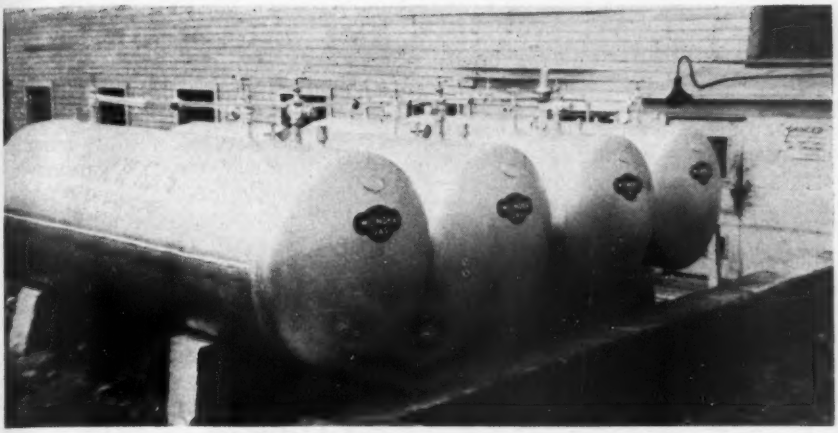
PRIOR to the time propane was adopted as a fuel for industrial heating purposes at the Carnation Co.'s can manufacturing plant in Mount Vernon, Wash., aviation gasoline had been used both in the can manufacturing plant and the milk canning division of the company. This fuel had proven to be troublesome, as poor controllability of flame was experienced as well as variation in heat value.

In making the conversion from aviation gasoline, which was premixed with air at the gas machines before being sent to the burners, it was decided to use the same burner heads. The burners, due to pre-mixing of the aviation gasoline with air had no venturi inlet for primary air. The burner tips were mounted on 1-in. manifold lines. In substituting propane as a fuel, we used low pressure gas, delivering at 12 in. water column pressure combined with compressed air delivered at high pressure and controlled with a ¼-in. needle valve. A "Y" was placed in the gas line just ahead of the burner manifold and here the gas and air were mixed. We found it advisable to place inside of the "Y" a ¼-in. nipple which would carry the gas ahead of the air inlet side, thereby eliminating danger of back pressure by action of air working against the gas. As a result we were able to produce long rows of fine, hard-burning, pencil-like flames, firing down and heating cans as they rolled along conveyors prior to having the ends of the cans soldered to the shell.

There are three conveyors equipped in such a manner that carry an average of 22,000 cans per hour.

Under each conveyor there were soldering vats measuring 5 ft. x 2 ft. x 7 ft. deep, all thermostatically controlled. As it was impossible to place burners underneath, due to the construction of the vats, a well made of ¼-in. steel and measuring 2 ft. x 6 in. x 5 in. deep was sunk into the receptacles. Forster P-8 burner heads were used without the venturi attachment. Ahead of the burners and alongside of the conveyor assembly was placed a "Y" for the injection of compressed air into the gas line leading to these burners, both the air and gas being controlled by a ¼-in. needle valve. On these burners low pressure gas was utilized. Used in conjunction with compressed air, a blast flame was delivered into the wells, the heat then being transmitted into the

* Since this article was written Mr. Beaulieu has joined the U. S. Army and hence is no longer sales manager.



The four propane tanks used by the Carnation Co. in its Mount Vernon, Wash., plant. These have a capacity of 1400 gals.

solder which is maintained at 710° F.

Other gas equipment in the can division includes straight shot burner heads screwed into a 1-in. rectangular manifold pipe and with no venturis. Compressed air is injected into the gas stream ahead of the burner manifold. These burners are used to fire a 22-in. soldering kettle to melt solder prior to pouring bars of solder.

The management of the Carnation Co. states that much less time has to be devoted to gas adjustment since substituting propane for aviation gasoline, a hotter flame is produced and operating costs have thus decreased considerably.

In this same factory evaporated milk is produced and canned. The cans are filled with milk through ⅛-in. holes in the top center of the cans. As the filling process is completed, the cans pass along a conveyor and under a straight shot gas burner which fires on the top of the can. This is done to create a vacuum in the can after it is sealed and cooled. An automatic soldering machine which seals each can is also fired by gas. This soldering iron is a revolving spindle with a pointed tip. Solder is fed against the spinning tip, a sharp gas flame firing the inside of the iron. As the cans pass along and under the iron, it dips and spot-solders the cans, thereby sealing them. Also on this machine is a steam superheater fired by gas.

In converting two of these milk can filling machines, the original aviation gas burners are used and, as in the can division, compressed air is used, there being a single gas-air mixing inlet controlled by needle valves for all of the burners. Some difficulty was experienced on this conversion, due to the design of the burner heads. This was, however, eliminated by installing a

regulator in the compressed air line and a catch-all for the purpose of eliminating moisture in the compressed air line.

Ahead of these machines a meter was installed segregating the gas costs for the milk division and the can division. As we are using 17 lbs. gas pressure for these machines a pressure factor of 2.17 is used when reading the meter.

Outside of the building we have installed four propane storage tanks, giving a net storage capacity of 1400 gals. These tanks are manifolded together with 1-in. heavy duty pipe. We have a primary regulator reducing the propane pressure to 17 lbs. and then it is carried by a 1-in. line to the building and further reduced to 12-in. pressure. The secondary regulator has been placed inside of the building and vented to the atmosphere with a ½-in. line. This was done as a precaution against cold weather.

The writer made this installation in February and in figuring operation costs on this job, we find that our estimate was fairly accurate, as the gas consumption has been near a stand-off with that of aviation gasoline even though we are delivering 91,500 B.t.u. per gal. propane gas against aviation gasoline of 125,000 B.t.u. per gal. We are serving the Carnation Co. out of our Seattle plant by truck.

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Warren Petroleum Will Make Isobutane in Illinois

A priority rating has been given the Warren Petroleum Corp. for the construction of a refinery in the New Harmony pool of White county, Illinois, where isobutane for aviation gasoline and other liquefied petroleum products will be made. It is expected that 160,000 gals. will be produced daily.

It will be part of a repressuring project in which are also concerned the Superior Oil Co., Tidewater Associated Oil Co., Sun Oil Co., and Continental Oil Co.

The Warren company is already constructing a similar plant in the Cumberland pool of Bryan and Marshall counties, Oklahoma. (See BUTANE-PROPANE *News*, Dec. 1941, Page 94.)

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N.G.A.A. Announces 1942 Convention Committee

Harry Ells, general manager of natural gasoline operations, Cities Service Oil Co., Bartlesville, Okla., has been appointed chairman of the 1942 convention program committee for the 21st Annual Convention of the Natural Gasoline Association of America, according to Ray E. Miller, president of the Association. The meeting is scheduled for May 13-15 in the Mayo Hotel, Tulsa, Okla. These dates are the three days preceding the scheduled opening of the International Petroleum Exposition.

Other members of the committee are: H. H. Beeson, E. E. DeBack, D. M. Wolfe, S. F. Mauney, Jr., G. W. McCullough, and R. A. Carter.

Aside from the technical program which charactertizes the working convention of this Association, an unusual feature being planned is the celebration of the 21st birthday of the organization in a "Coming of Age" banquet. Entirely on the serious side, plans for the event include the presentation of national authorities in discussions of national defense programs affecting the products and operations of the natural gasoline and distillate industries.

Floating Gas System Serves Atlantic Island Home

AN unusual LP-Gas service problem presented itself to the Carolina Butane Gas Co., Inc., Columbia, S. C., when Mrs. Margaret P. Huyler, of Connecticut, announced to G. W. Jones, president of the company, that she wanted butane gas for cooking, water heating, refrigeration and house heating in her winter home on Dewees Island, four miles off the coast of South Carolina near Charleston.

From this floating storage tank liquefied petroleum gas is conveyed to an island home for domestic usage.

Mr. Jones explained to Mrs. Huyler that such an installation on the island was impossible, due to the fact that the system could not be re-fueled because there was no means of spanning the four miles of water separating the island from the mainland. Upon learning this, Mrs. Huyler was greatly disappointed and told Mr. Jones that she had just purchased a gas refrigerator and range with the expectation of using LP-Gas.

After she left his office, Mr. Jones did some serious thinking and then called Mrs. Huyler and told her he had the solution to the service problem. If a raft were built, a 559-gal. butane system could be floated to the island. Two 60-gal. water heater boilers on either side of the system would keep it upright. This plan, Mr. Jones explained, would necessitate the use of a motor boat to tow the empty system across the span of water to the mainland for re-fueling at the dock, and this would have to be done at the customer's expense. Mrs. Huyler enthusiastically endorsed the plan.

A. A. McManus, of the company's installation department, was assigned the job of making the installation. Two tanks were attached on either side of the system for stabilization purposes. Two galvanized chains, approximately 20 ft. long, were attached to the system

The LP-Gas-equipped home of Mrs. Margaret P. Huyler on Dewees Island in the Atlantic off the coast of South Carolina.

and to old automobile motors which served as anchors. Then the system was given a thorough coat of red lead and asphalt.

On the island, a pipe line was brought down from the Huyler home at low tide as far into the ocean as low tide would permit and then run up the side of a piling. A flexible rubber hose about 20 ft. in length was attached to the low-pressure side of the regulator and then attached to the pipe line leading into the house. The rubber hose was long enough to allow for ample slack during extremes of rising and falling tides.

Mrs. Huyler, who owns Dewees Island and, with her brother, occupies it exclusively, is highly pleased with the installation which is now going into its second season. LP-Gas is used for cooking, heating water, refrigeration, and house heating. During the six months they used the system on the island last year, they made three trips to the mainland for fuel. At low tide the system is in two feet of water, and at high tide the water is approximately eight feet deep. When the system was removed from the water at the end of the season, it showed no signs of corrosion in any form.

The Carolina Butane Gas Co.'s headquarters are in Columbia. Other offices of the company are located in Conway, Waterboro, Greenwood and Spartanburg, S. C.

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Liquefied Gas Distributor Is Rated as Gas Utility in Texas

Distributors of liquefied gas are "gas utilities" within the meaning of the Texas law which places a gross receipts tax on gas utilities, according to a ruling by the attorney general's office in August. As a result of the ruling the question immediately was raised whether such distributors' rates would be subject to regulation as are rates of natural gas companies.

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Coulter-Powers Firm Serves Western Slope of Rockies

The Coulter-Powers L. P. Gas Co., Grand Junction, Colo., a partnership composed of Joe Coulter and John Powers, has taken over the dealership of LP-Gas appliances and fuel and will serve the communities on the western slope of the Rocky Mountains.

THE BOTTLED GAS MANUAL

Chapter 7

Regulations. Selecting and Installing the Gas Regulatory and Storage Equipment

NOW that we know a bit about what goes on inside a propane gas system we are ready to devote an evening to discussion of selecting and installing the gas equipment. By gas equipment I mean regulating devices and storage facilities exclusive of the piping and the appliances in which the fuel is burned.

Regulatory Bodies. Ever since its inception this industry has been cooperative with those bodies which have to do with safety regulations, and as a result of this it enjoys an enviable position in so far as accidents and fire risks are concerned. G. L. Brennan, in an excellent article which appeared in the June, 1941, BUTANE-PROPANE *News*, brings out the close coordination which exists among fuel manufacturers, distributors, dealers, equipment and appliance manufacturers, and those regulatory bodies. No operative in the industry should be without a copy of Freight Tariff No. 4 and Motor Carrier Tariff No. 5, both of which can be obtained from the Bureau of Explosives, 30 Vesey St., New York City. In addition to this he should have a copy of Pamphlet No. 58, National Board of Fire Underwriters, obtainable without cost.

Other Regulatory Bodies. There is an old saying that "one rotten apple will spoil the whole barrel of apples," and this has been unfortunately true in this industry of ours. In some states operators have sprung up who have flagrantly disregarded the regulations set up for their own protection by the Interstate Commerce Commission, the Bureau of Explosives, the National Fire Protection Association, and National Board of Fire Underwriters. As a result many states have taken upon themselves the regulation of this industry, thus showing that if an industry does not govern itself, it will be governed.

The National Board of Fire Underwriters. Many people do not understand just what function is performed by the National Board of Fire Underwriters. There are scores of fire insurance companies in the United States. If each company had its own specifications for approved equipment and methods of installation, it is easy to imagine what the resulting confusion for

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• The Bottled Gas Manual series by C. C. Turner, started in the July, 1941, issue of BUTANE-PROPANE *News* and will continue to be published monthly in chapter form until completed. This series constitutes a valuable text book and field manual that should be invaluable to everyone in the liquefied petroleum gas industry.—*Editor.*

all industries would be. The National Board of Fire Underwriters is a corporation supported by the fire insurance companies of the United States, and its primary purpose is the testing and approval of appliances and equipment from a safety angle. Its secondary purpose is to make insurance economically possible and of advantage to everybody by advocating policies that result in greatest safety. The operator who does not comply with both the letter and spirit of the Underwriters' regulations is indeed shortsighted.

Classification of Propane Services. There are three principle methods of transportation of propane to the consumer, and they may be roughly divided as follows:

1. By means of I.C.C. cylinders which are filled at bulk plants and delivered to the consumer by rail or truck, or by both means of transportation.
2. By means of truck tanks which are filled at bulk plants, and which refill containers permanently installed upon the premises of the consumer.
3. By means of tank cars which are unloaded into permanently installed containers on the premises of the consumer.

Containers which are transported by rail or truck come within the jurisdiction of the Interstate Commerce Commission and the Bureau of Explosives. These bodies have formulated specifications for the construction of such containers, and the National Board of Fire Underwriters treats them in a separate classification. The usual container is the well known 100 lb. bottle which has gained such favor with the industry.

Regulations Applicable to I.C.C. Containers. It is not my purpose to herein state all regulations applicable to this type of container, and each operator should carefully study state and local ordinances which also apply, but there are certain fundamentals which must have consideration on each equipment installation. Here are a few of them:

A. Aboveground containers shall be located outside of any building.

B. The installation of containers beneath buildings shall be prohibited.

C. Equipment and appliances used on propane installations must be approved by the A.G.A. Testing Laboratories, or other competent laboratories recognized by the enforcing authority, or by the enforcing authority having jurisdiction.

D. I.C.C. containers and regulating equipment shall not be installed below ground.

E. Containers shall be set upon a firm foundation or otherwise firmly secured.

F. Valves in multiple container systems shall be arranged so that replacement of containers may be made without shutting down the system. This provision does not require an automatic change-over device.

G. Container valves, accessory equipment, and joints on the high pressure side of the system must be protected in an approved manner against tampering.

H. When containers are not connected to the system the outlet valves shall be kept tightly closed,

even though the containers are considered empty.

I. Tests of any piping system for leaks shall not be made with a flame. Soapy water shall be used.

J. The discharge from safety relief valves shall be located not less than five feet away from any building opening which is below the level of such discharge.

K. Valves and connections to containers shall be protected while in transit, storage, and while being moved either by being set in a recessed portion of the container, or by a ventilated cap or collar.

L. Containers which are recharged at the installation shall be provided with excess flow or back pressure check valves to prevent the discharge of container contents in event of leakage of the filling or equalization connections.

M. Containers must not be reinstalled unless they have been retested in accordance with I.C.C. regulations in effect at the time.

N. All men having to do with installation, operation, and maintenance instructions must be equipped with complete manuals.

O. Domestic installations must be equipped with instructions for the user's operation and they must be securely attached in a position which is visible and legible for ready reference.

P. Inflammable material such as weeds and dry grass should not be within ten feet of any propane container.

Q. In domestic installations no liquid or gas can be led into a building at more than 20 lbs. gage pressure. The initial pressure reducing device must be installed outside of the building.

R. Low pressure piping must be able to withstand a pressure of 125 lbs. Only approved fittings shall be used. The use of cast iron fittings is prohibited.

S. Filling or exchanging of containers should be only done by daylight. In case that servicing is required by night only explosion proof flashlights should be used.

These are not, by any means, all of the regulations which govern the handling of I.C.C. containers, but they are the principal ones.

Regulations Applicable To Other Than I.C.C. Containers. There are other regulations which govern the use of these containers together with equipment. It would be well to get a copy of the N.B.F.U. Pamphlet 58 and study it carefully so that you will know all the answers.

Regulations Governing Welding and Cutting Equipment. These differ somewhat from those applying to I.C.C. cylinders, and the installation man should become familiar with the Underwriter's booklet on the "Installation and Operation of Gas Systems for Welding and Cutting."

Industrial Installations. Such installations present new problems each time, and for this reason the supplying concern is required to submit detailed plans and specifications of such proposed installations to the inspection department having jurisdiction.

Waiving of N.B.F.U. Regulations. Many operators have the mistaken idea that local fire departments or insurance agencies have the right to waive safety regulations as promulgated by the N.B.F.U. By way of example, I have

been told in all seriousness by operators that the local fire department or insurance agency has said that it would be O.K. to install propane cylinders inside of a building. Leaving out all arguments as to safety of lives and property, who establishes the insurance rates, and on what basis? If anybody is going to waive the regulations of the N.B.F.U. it is going to be the N.B.F.U., itself, and you are placing yourself liable by encroaching upon this right.

What Size and Type of Equipment Shall Be Used? In the matter of the regulator capacity we must be guided by the recommendations of the manufacturer when we once know what the load per hour will be. In establishing the load it is well to give consideration not only to the present load, but what the potential load may be at a future date. True, we may be able to get by with small regulators, but they do not operate efficiently under peak load conditions, and the cost of changing over a system after it has once been installed is much greater than to anticipate our needs. We must not select a regulator on a 60-lb. inlet pressure rating when it is to be used in connection with an automatic pressure differential manifold at a low setting of 5 lbs. or 6 lbs.

Our second consideration must be given to storage facilities and their ability to vaporize in sufficient quantities to handle our needs. We learned much of this in Chapter 4 and a review of this section might be advantageous at this point. Errors in this respect are much more likely to be made than in the matter of regulator capacity.

Where Should the Equipment Be Located? Our first consideration must be given to where it *can* be located in reference to N.B.F.U. regulations and other governing statutes, after which we must use the process of elimination. It is well, if possible, to comply with the customer's wishes, and it will be found that usually these will call for installation in an inconspicuous place. We must bear in mind that, whereas we in the industry like to see installations in a conspicuous place for advertising purposes, the general public does not look upon a bottled gas installation as a particularly fine example of art. The matters which we must decide in this respect are arranged in the order of their importance:

A. Where can the installation be located in conformity to regulations?

B. Where does the customer prefer to have it installed?

C. Where can it be serviced most easily?

D. Where can it be installed with a minimum of effort and expense?

E. Where will it require the least amount of exposed piping within the building?

In the matter of easy servicing, we must not forget that this may be required in a time of rain, snow or mud, and that accessibility as well as freedom from snow or mud should be of prime importance. Cabinets should not be installed where they are exposed to the drip-

ping of rain off the eaves or snow sliding off the roof.

The Fundamental Step. The leaning Tower of Pisa stands as an example of either ignorance or carelessness in providing a proper foundation, and there are numerous bottled gas installations which likewise do no credit to the operators who installed them. A little money and time spent in this respect will pay dividends.

Foundations for bottles should be of fireproof construction, and there are many excellent materials. Here are a few of them:

Concrete. Reinforced concrete slabs may be pre-cast and moved onto the job with comparative ease. Make a form or series of forms that are easily removed and that can be used repeatedly. Use a 1:3:5 mixture by volume. Fill form with 1 in. of mixture, then put in reinforcing iron. This may be deformed iron, scrap iron, old pipe, plaster mesh or ¼ in. mesh screening. Fill balance of form, topping off with ½ in. of 1:3 mix, and round corners with a bevelling tool. Such a slab will be "cured" for use in about one week's time.

Slate Slabs. In many sections of the country these can be purchased cheaply and cut to size. Contrary to the general opinion they are tough and lasting.

Mortar and Brick Bases. Old brick in reasonably good condition can be used for these. Prepare the ground first with a layer of sand; then about 1 in. of 1:3 mortar. Wet bricks and set them into mortar, filling the crevices with mortar.

Concrete Building Blocks. Passable bases may be made of these, but they should be laid exactly as the mortar and brick bases, otherwise they will soon crumble or get out of place.

Flagstone Masonry. Excellent bases may be made of flagstones set into concrete, but the time and skill required to make a passable job often make them more expensive than other types.

Bases should be perfectly level, and set about 2 inches above the surrounding ground in order to provide for proper drainage. A frozen-in cylinder isn't a pleasant thing to chop out at 40° below.

Some operators have been using bases constructed of 2-in. plank and treated with preservative coatings, but their use should be discouraged. They are not fire-proof, and some preservative coatings make them highly combustible.

Regulator and Cylinder Housings. During the past few years designers of this type of equipment have given much thought to the stream-lining of their product, but this practice is of no avail if the installation man does not erect them at the proper height, plumb, and in accordance with the manufacturers' specifications. Furthermore, housings which are not properly installed and do not prevent unauthorized persons from tampering with the equipment do not conform with the spirit of regulations.

Today there are many half-cabinets, or hoods, used. The rounding of the top of the average 100-lb cylinder starts at a distance of approximately 42-in. from the ground. Most such cabinets or hoods are designed to fit the cylinder at this point.

This evening has been well

spent if we have learned two things of great importance—the first of which is *stick to the rule book!* Let us not think to save time or money by disregarding the regulations of the National Board of Fire Underwriters and other regulatory bodies. Five minutes of time gained, five cents of expense saved, an account of questionable value landed by tactics which are not right, and it might mean for us a life time of debt, regret, sorrow!

And the other thing? Let's make our installations a credit and an advertisement to us. Sticking to the rules and doing things in a workmanlike manner *pays!*

Now, let's consider some questions on this chapter. Answer them to the best of your ability and then turn to Page 98 to see if you are correct.

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Questions on Chapter 7

1. By whom is the National Board of Fire Underwriters principally supported?
2. Does the permission of a local fire department or any insurance agency office give one the right to install propane cylinders within a residence or place of business?
3. What should be the location of the vent to a pressure relief device?
4. By whom may regulating equipment and appliances be approved?
5. What pressure must the low pressure side of a propane pipe line be able to stand?
6. What type of fittings are expressly forbidden?
7. When may cylinder valves be left open?
8. Is it permissable to install cylinders beneath a porch?
9. Name in their proper order the five considerations which should be given the location of regulating equipment.
10. What is the first step in making a good bottle gas installation?

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(*Chapter 8 of* THE BOTTLED GAS MANUAL will appear in the February issue, of BUTANE PROPANE *News*).

◆ ◆

New Valve and Meter Offices Located on West Coast

San Francisco and Seattle have been selected as locations for new sales and engineering offices by Merco Nordstrom Valve Co. and Pittsburgh Equitable Meter Co. According to an announcement by Captain A. E. Higgins, vice president, these offices have been opened as a part of the expansion activities of the two companies to give increased service on the West Coast.

Russ Waters has been appointed branch manager of the San Francisco office, which is located in the Hobart Bldg., 582 Market St. He will be assisted by Fred D. Webster, R. L. Ford and Gilbert T. Bowman, who has for several years been in the Oakland plant. The Seattle office will be under the jurisdiction of the San Francisco sales office. It has been established at 110 West Denny Way, out of which will work Frank P. Tangney and William R. Dominick.

Hereafter, sales activities in the Bay District will be directed from the San Francisco office instead of from the companies' plant at Oakland. H. Boezinger, vice president, is in charge of sales for the entire West Coast.

This Year—
AMID THE PROBLEMS
AMID THE NEEDS . . .
"RONEY WRITES"
So many new things in this fast moving age make it difficult to keep pace with an ever changing world . . . but with the sincere expression of good will enduring through all ages we repeat . . .
Season's Greetings
L. C. RONEY INC.
1740-44 W. 59TH ST. • LOS ANGELES, CALIF.

Acetylene, Kerosene Give Way to LP-Gas

GEORGE M. BOWER Tractor Service, 436 South Main St., Princeton, Ill., specializing in radiator work, is a great booster for bottled gas. For the past year, Mr. Bower has used this fuel for boiling out radiators, for torch work and for heating soldering irons. The bottled gas replaced acetylene for torch work and kerosene for the radiator boiling-vat.

Mr. Bower has his own gage, there being three connections for the bottled gas tank, one for each type of work. LP-Gas has several advantages over the two fuels formerly used. For torch work it is not too hot and it is perfectly clean. With acetylene, there is considerable soot and this is eliminated with bottled gas. It is much cheaper than acetylene. With the latter, a tank was used each month. With bottled gas for torch work, alone, one tank lasts a year.

Another saving has been made on the "tips" used on the end of the torch. With acetylene, the tips were burned so bad that a new one was required each month. Since bottled gas has been used, the same tip has been used for an entire year and is still in good condition.

Kerosene for use with the boiling vat is a little cheaper but bottled gas is much quicker and is not nearly so dangerous.

In using bottled gas for the three-way service, the total yearly cost is about $35. The total yearly cost of acetylene and kerosene was about $65. The cost with bottled gas is therefore only a little more than half of that of the former fuels used and in addition the work is done quicker and better. But very few changes were necessary to switch the equipment from acetylene and kerosene to liquefied petroleum gas.

◆ ◆

October Production In West Almost Doubles 1940 Figure

October production of LP-Gas in California increased 4,000,000 gals. over the previous month and nearly doubled the October, 1940, production (7,950,000 gals.). Four new companies were added to the list of manufacturers of this type of gas, making a total of 20.

Distribution of Liquefied Petroleum Gases, October 1941

(Thousands of gallons)

Number of producing companies	20	
Stocks beginning of month.		4,491
Production during month:		
At natural gasoline plants	7,354	
At refineries	7,450	
Total production		14,804
Total		19,295
Total demand		11,348
Trans. to gasoline or natural gasoline		3.237
Losses		398
Stocks end of month		4,312
Total		19,295

The accompanying table, supplied by Edward T. Knudsen, of the Los Angeles office of the Petroleum Economics Division of the U. S. Bureau of Mines, shows the distribution of LP-Gas, October, 1941.

FOR GREATER INDUSTRIAL POWER

SINCLAIR LP

BUTANE
PROPANE

GAS

For greater industrial power, no finer liquefied petroleum gas can be had than Sinclair Butane-Propane. Sinclair LP-Gases have been scientifically tested and have proved their economy, efficiency and high quality. Sinclair LP-Gases are being used in tractors, gas engines, hoisting equipment, trucks, ice plants, machine shops, glass manufacturing—every place where extra power and fuel efficiency is needed. Sinclair LP-Gases are made in Sinclair's modern plants by experienced workmen.

Industries availing themselves of Butane can also modernize their offices and the homes of their workers by extending the use of Butane.

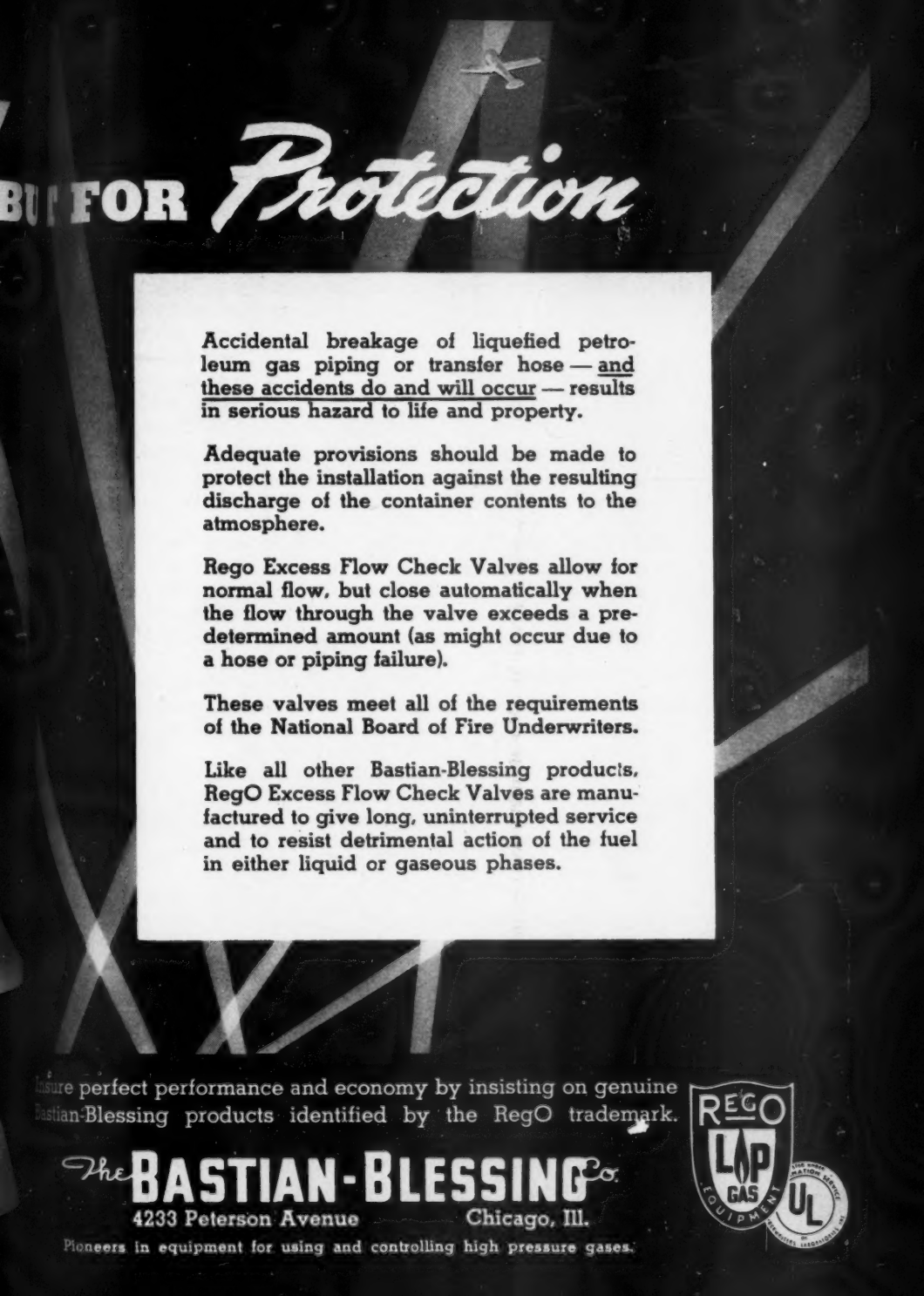
SINCLAIR BUILDING TULSA, OKLA.

SINCLAIR PRAIRIE OIL COMPANY

DESIGNED AND BU

REGO

EXCESS FLOW
CHECK VALVES


BU FOR Protection
Accidental breakage of liquefied petroleum gas piping or transfer hose — and these accidents do and will occur — results in serious hazard to life and property.
Adequate provisions should be made to protect the installation against the resulting discharge of the container contents to the atmosphere.
Rego Excess Flow Check Valves allow for normal flow, but close automatically when the flow through the valve exceeds a predetermined amount (as might occur due to a hose or piping failure).
These valves meet all of the requirements of the National Board of Fire Underwriters.
Like all other Bastian-Blessing products, RegO Excess Flow Check Valves are manufactured to give long, uninterrupted service and to resist detrimental action of the fuel in either liquid or gaseous phases.
Insure perfect performance and economy by insisting on genuine Bastian-Blessing products identified by the RegO trademark.
REGO
LP GAS
EQUIPMENT
UL
The BASTIAN-BLESSING Co.
4233 Peterson Avenue Chicago, Ill.
Pioneers in equipment for using and controlling high pressure gases.

Rural Electric Lines Help Sell LP-Gas Appliances

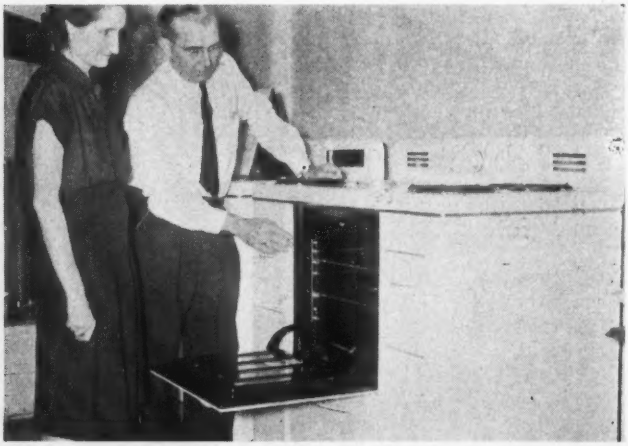
PREDOMINANCE of rural electric lines in Canadian County, Oklahoma, is helping the Tanner Electric Co., of El Reno, to sell LP-Gas systems and appliances!

E. Tanner, owner of the firm, has proven that a partially electrified farm home already is sold on the idea of modern household and power facilities. If beyond the natural gas mains, the householder and his family very often welcome the LP-Gas salesman who can show them how the home can be made 100% modern by the addition of his products and appliances.

No Fear of Competition

One of the largest electrical appliance dealers in Canadian County, Mr. Tanner carries, right beside his electric appliances, a display of modern LP-Gas and natural gas ranges. The city of El Reno, the county seat, is one of the few towns in Canadian County which has natural gas facilities. Electric lines and service, however, are available at almost any point in the county, due to electric utility and REA activities.

Mr. Tanner does not sell LP-Gas but confines his activities to disposal of LP-Gas systems and appliances. His two salesmen make no door-to-door canvasses. The firm secures all its prospects through visitors to its El Reno or Union City display rooms, through tips from satisfied customers, or from

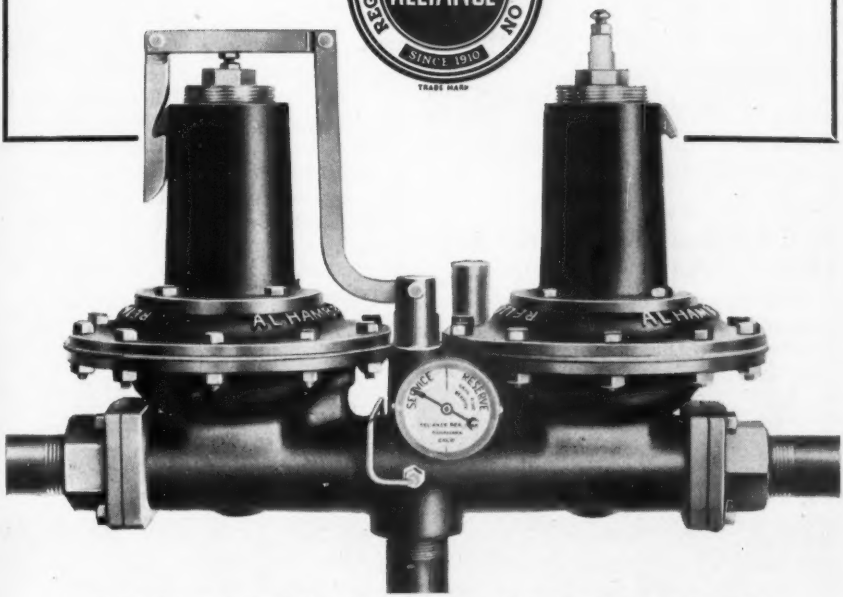


E. Tanner demonstrating advantages of a modern LP-Gas range.

Right at the Burners

In houses and factories, Reliance Regulators are expanding the use of liquid petroleum gases by insuring proper and uniform pressure at the burners and consequent satisfactory combustion. Two-stage reduction enables the regulating system to handle wide variations in cylinder pressure and at the same time maintain steady and uniform pressure at the burners. When two cylinders are used, either may be drawn upon normally, or both when the load is temporarily increased. The patented and exclusive indicator shows the condition of supply at all times.

REGULATORS YOU CAN RELY ON
RELIANCE
SINCE 1910
TRADE MARK



RELIANCE REGULATOR CORPORATION

1000 Meridian Avenue • Alhambra, California

RELIANCE

newspapers and radio advertising.

"On the day after a housewife purchases one of our larger appliances we call upon her to see how the merchandise is operating," says Mr. Tanner. "We also make two more calls each month on each such customer. If she is having any trouble we adjust the appliance and if it must be taken to the shop for repairs we leave another appliance of the same kind for her to use in the meantime. We make no rental charge for this service. We find that this makes for satisfied customers for more modern appliances whether they fall in the gas or electric classifications.

"Our experience would indicate that there should be no unfriendly or cut-throat competition between electric and LP-Gas dealers, as there is plenty of room for all in a country hungry for modern conveniences," Mr. Tanner adds.

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New Aviation Communities Aid LP-Gas Sales in California

Government sponsored communities engaged in aviation activities have proven to be the source of many recent LP-Gas installations, according to A. N. Kerr, of the Imperial Gas Co., Los Angeles.

The Adelanto (Calif.) plant of the company is situated near the large air field at Victorville, which is being constructed by the government for training aviators. Ross Parsons and Mrs. Parsons, Rockgas distributors at the plant, report greatly increased sales in the growing community.

Another storage station of the company located at Los Altos, Calif., has recently doubled its propane storage. This station is near the Sunnyvale aviation field. Lawrence Duarte, distributor, delivers Rockgas on a monthly routing system and is able to accommodate many of the army aviators as well as the local residents.

In order to set free many cylinders which have been tied up for storage reserve for months at a stretch, sometimes, Joseph Lamoureaux, Rockgas dealer at Parker, Ariz., is installing a small bulk plant for refilling customers' tanks.

◆ ◆

Fleck's Appliance Store Opens In Dickinson, N. D.

Fleck's Farm and Home Appliance Store was opened in October at 432 W. Villard St., Dickinson, N. D., according to Frank C. Fleck, general manager. The remodeled store gave a bottled gas range to the person guessing closest to the weight of a range on display.

A completely furnished model kitchen is a part of the modern equipment and a large display space has been provided in the front of the store for the appliances handled by the firm. The rear portion of the building, which is of brick, tile and stucco construction, is devoted to the service department and warehouse.

Personnel of the establishment, in addition to Mr. Fleck, includes: Steve V. Fleck, sales manager; Marcella Fleck, stenographer, and Al Gress and J. G. Gengler, servicemen.

◆ ◆

Geo. L. Messick Co. Displays Festival in Colusa, Calif.

LP-Gas appliances of the Geo. L. Messick Co., Colusa, Calif., were recently displayed at the Seventh Annual Colusa County Harvest Festival held in that city.

The show was sponsored by the Colusa appliance dealers and the Pacific Gas and Electric Co., San Francisco utility.

BANKS TANKS DOMINATE

On The Assembly Line

By

W. W. BANKS

We Take Inventory

This season of the year is inventory time in many lines of mercantile endeavour. We pause momentarily to take mental stock of our own assets here at the Dallas Tank & Welding Company. Among those first on the list and treasured most are the friendships of our dealer friends throughout the country. We are deeply appreciative of the business you have given us and take this means of putting on record our words of appreciation. To our friends everywhere we send greetings of the season and sincere wishes for a prosperous New Year!

We Manufacture All Types of Tanks

In addition to Economy Butane Systems we manufacture all types of Truck Tanks, Bulk Storage Tanks, Skid Tanks, Butane Motor Fuel Tanks, Smoke Stacks, Breechings, Steel Plate Fabrications. We are distributors for Scaife Cylinders, and Tru-Flame Butane Gas Ranges.

★ *Write or wire for complete information and prices. P. O. Box 5351.*

DALLAS TANK AND WELDING COMPANY, INC.

201-5 W. COMMERCE ST. DALLAS, TEXAS

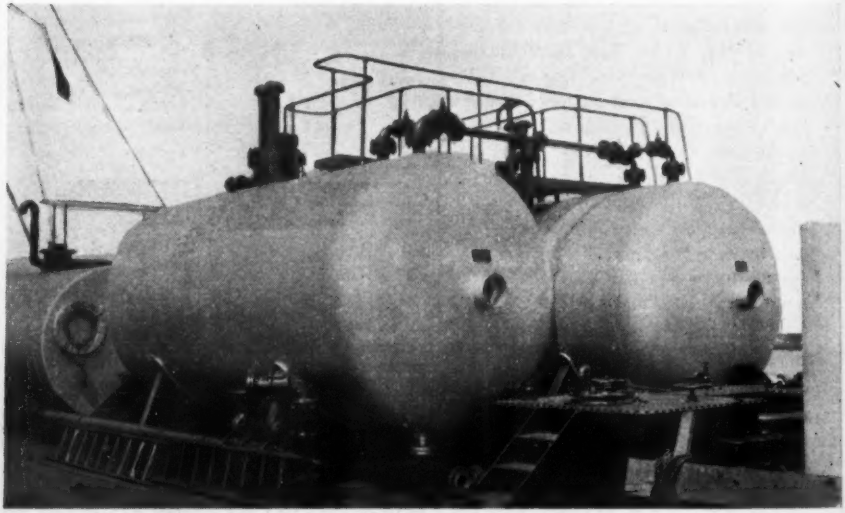
Barges Carry Butane to Avalon

SUPPLYING the city of Avalon, on famous Santa Catalina Island, which lies off the southern California coast, with butane is a big job. It takes thousands of gallons of this fuel each month to operate the gas-air system now serving the island resort and every gallon must be transported across the 27 miles of ocean between the island and the port of San Pedro.

Now under contract to supply the island, is the Standard Oil Co. of California. In order to insure delivery of these large quantities of butane, company engineers have mounted LP-Gas tanks, with complete pumping and metering facilities, on one of the company's ocean-going barges. The tanks are loaded before each trip at the refinery docks at San Pedro from butane tank cars.

Especially constructed under the marine code for the ocean transportation of butane and propane, the two storage tanks each hold 5600 gals. of butane. Because of a ruling of the marine commission, bottom outlets are not allowed. Thus, all liquid is pumped from the tanks through top outlets, necessitating a lift of some 10 to 12 feet. This is accomplished without difficulty by the pump installed on the barge.

The rotary-gear pump, installed for the discharge of liquid butane at Catalina Island, is located in a special compartment a few feet



Closuep view of butane tanks which are loaded at San Pedro, Calif., refinery docks for shipment on ocean-going barges used to transport fuel to Catalina Island.

TO EVERY FLORENCE DEALER

The National Defense Program is making increasingly heavy demands upon us all . . . and I know that you will agree with me that it *must* come *first*. I promise you now, however, that within the limitations of that Program, this Company will do everything in its power to help Florence Dealers successfully through the emergency.

Our material sources are dependable, and we are certain to get our share of available materials. This means that we shall still be able to build you a great many ranges and other Florence products during 1942.

We shall continue to build you a "range for every modern fuel" —for gas, oil, bottled gas, electricity, as well as dual-oven oil-and-gas ranges. This broad Florence line puts you in an extremely good position to meet today's conditions, because it gives powerful selling leverage in the flexibility that lets you offer a choice of fuels to your customer.

You will be able to count on the same high quality you have always expected of Florence products. If shortages of certain materials continue, we shall have to replace them with others. But our technicians are ready—I can promise you that basic Florence quality will not suffer no matter what changes we have to make. You will be able to sell Florence products with full confidence in their dependability; we shall stand back of them as we always have.

We shall continue our advertising. The name "Florence" is a valuable part of your selling equipment; and we plan to maintain this prestige in millions of American homes.

You have always been able to depend upon Florence. You can now, and you will be able to after the emergency has passed.

We appreciate highly your co-operation, patience and good will in a difficult time.

N. B. Fowler

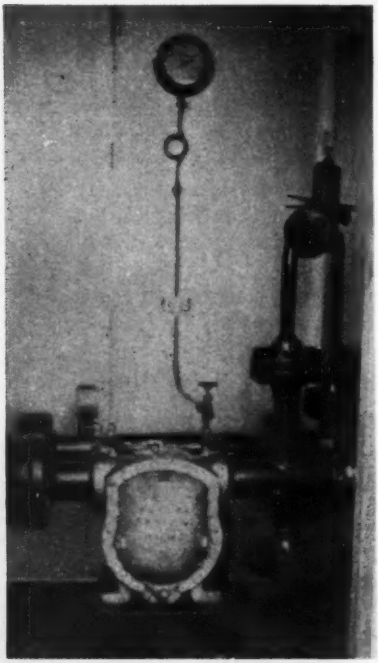
President

NOTE—I am glad to tell you that we are serving National Defense directly, in the manufacture of important materials for the War Departments, and in products for Defense Housing.

FLORENCE STOVE COMPANY • GARDNER, MASS.

from the tanks. It is a model 300 Smith butane-propane pump, manufactured by the Smith Precision Products Co. of South Pasadena, Calif. With a capacity of 100 gals. per minute, it is possible for the pump to unload the two storage tanks in less than two hours. This is done in spite of the heavy pressure incident to extra long discharge lines and the storage head.

The pump house on the barge is of unique construction. Built to house the liquid pump, and the gasoline power unit used to drive it, the enclosure has two separate compartments, divided by a steel partition. In one compartment is the rotary pump, in the other the power unit. A shaft, equipped with flexible coupling, passes through a stuffing box set into the steel partition, making a direct connection between the engine and the pump. Each compartment is provided with separate ventilation. This construction has been carried out to comply with the marine code and as a safeguard against fire.



View of rotary gear pump in steel dog-house compartment. Wall to rear of pump divides this compartment from similar space where power plant to drive pump is housed. Steel shaft through packing box in wall allows direct connection of pump and motor.

Liquid butane transported on the barge is metered by a Smith meter, manufactured by the Smith Meter Co., of Los Angeles. It is manifolded so that it can be used for metering into the barge at the refinery docks as well as for the discharge at the island. This makes it possible to deliver part of the load at several places as needed.

The tanks are filled at the refinery docks through a pipe line running from stationary pumps installed in the refinery. This line, with its vapor return line, is connected to tank cars located about one-quarter of a mile from the dock.

The barge, fitted with tanks for the transportation of fuel oil as well as butane, is towed from the mainland to the island at regular intervals. Attendants state that the round trip is made in about 10 hours, including the time needed for unloading. The barge is sturdy enough for coastwise traffic and it is expected that such barges fitted in the same way will be placed in service by oil companies as the demand increases for butane and propane transportation up and down the coast.

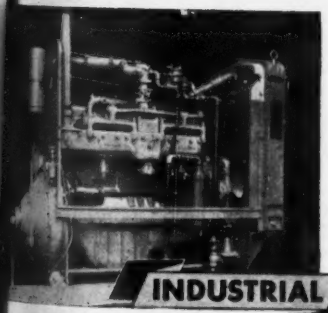
ENSIGN

LEADS THE FIELD

in Butane Carburetion

TRUCKING

FARMING



INDUSTRIAL

Accurate proportioning of butane-air mixtures is vitally essential for maximum horsepower and economy. ENSIGN Fuel Regulators and GasCarburetors function together to make a highly efficient controlled mixture of fuel and air necessary for correct combustion to obtain best performance under all operating conditions.

ENSIGN Carburetion for Butane or Natural Gas is made for internal combustion engines of all types and sizes. Straight Butane or Combination Butane, Natural Gas and Gasoline are available, all having interchangeable venturis to facilitate correct metering for any carburetion requirement —from the constant speed stationary engine to the extremely variable high speed truck engine operation.

Since 1911 ENSIGN has specialized in carburetor building. Constant research and testing for many years has resulted in the development and application of new and improved principles—those exclusive ENSIGN features enjoyed in today's carburetion.

From Huntington Park, Chicago and Dallas radiate our lines of sales and service activities to all parts of the United States, Central and South America. Your inquiry is cordially invited and without obligation. Write us about your Butane Carburetion problems. ENSIGN engineers, service men and distributors everywhere are glad to be of service.

Write us for complete information. Our competent engineering staff is at your service.

ENSIGN

CARBURETOR CO., LTD

HUNTINGTON PARK, CALIF. • DALLAS, TEXAS • CHICAGO, I

BUTANE Power

Air-Fuel Ratio Instruments

THE adjustment of the air-gas mixture when converting internal combustion engines to use butane gas is very important in order to obtain the best possible performance. Special instruments are not always available so that mechanics have developed a technique for making adjustments with a degree of success depending upon their skill and experience.

More precise adjustment may be made through the use of an instrument especially designed to indicate the air-fuel ratio. This instrument uses a sample of the exhaust gas and registers directly on a dial the air fuel ratio when making a carburetor adjustment in the shop. A typical instrument of the thermal conductivity type will indicate air fuel ratios from 10 to 1 up to 16 to 1. Reference to the *Handbook Butane-Propane Gases* will indicate that the ratio 15.5 to 1 by weight is the ideal ratio for perfect combustion. This ratio is merely used as a guide. In actual practice adjustments are made so that the mixture is slightly gas-rich or slightly air-rich, depending upon whether maximum power or maximum economy is desired. For example, heavy duty trucks or tractors used in construction projects may find its desirable to use the mixture recommended for maximum power output, whereas in other cases the operator may demand an adjustment for maximum economy. The air-fuel ratios quoted here are taken from the experimental work of W. H. Paul and M. N. Popovich*. The recommended ratios appear in Table 1.

This data obtained from these

* "Optimum Power and Economy Air-fuel Ratios for LP-Gas" Bulletin No. 14, June, 1941, Engineering Experiment Station, Oregon State College.

TABLE 1. AIR-FUEL RATIOS

LP-Gas	*Measured Air-Fuel Ratio, Maximum Power*	*Instrument Reading*	*Measured Air-Fuel Ratio, Maximum Economy*	*Instrument Reading*
Propane	15.5	13.4	17.9	15.2
Commercial Butane	15.2	13.7	17.7	15.4
Butane	15.0	13.6	17.5	15.6

laboratory tests on engines would indicate that the recommended air fuel ratio does not change much for the commercial butanes sold for internal combustion engine use. However, the question may well be asked, "Why doesn't the recommended instrument reading check the measured air fuel ratio?" The reason is simply that the commercial instrument is designed for use with gasoline and consequently does not indicate the true air fuel ratio when employed with butane-propane gases. The instruments are nevertheless useful but a special reading must be specified for butane.

Another characteristic of the instrument should be understood. If by chance the mixture should be adjusted on the very lean side there would be a tendency for the instrument to return to readings of lower air-fuel ratio. The excess air introduced with very lean mixtures causes the meter to swing back to the lower end of the scale. A little experience with such instruments will help to prevent incorrect settings of the butane carburetor.

◆ ◆

H. J. Murray Buys LP-Gas Firm at Beaumont, Calif.

Announcement has been made of the sale of the Liquefied Gas Co., Beaumont, Calif., which has been owned and operated by Charles M. Denton for the past two years, to Hill J. Murray. The company is located on the site of the Signal Oil plant at Sixth street and Wellwood avenue.

With a station on the main highway from Phoenix, Ariz., to Los Angeles, sales to butane-operated trucks will be featured.

Mr. Denton has accepted a position with the Southern California Gas Co.

This "tanker" of Charles M. Williams hauls cotton seed oil. It is powered with a G.M.C. engine No. 477 and equipped with an Ensign butane carburetor. The truck has been operating with an excellent record of economy and ample power. Mr. Williams is associated with Thompson's Butane Co., Madera, Calif.

Safety Provisions Feature New Dispensing Station

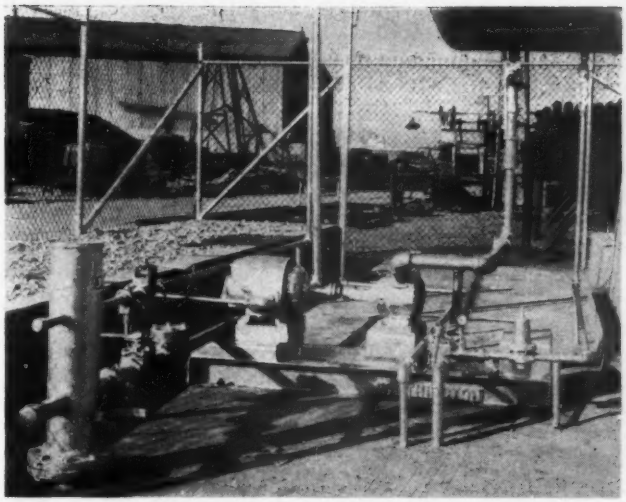
RECENTLY completed at the Los Angeles plant of the Griffith Co., West Coast roadbuilding contractors, a completely modern butane dispensing plant is now in use for the re-fueling of the company's large fleet of butane equipped trucks. The storage and dispensing equipment was installed according to the latest I.C.C. regulations, under the close inspection of Los Angeles firemen so as to conform to all the requirements of the new city ordinance for LP-Gas.

The new plant is considered to be one of the finest dispensing systems in this area from the standpoint of construction and safety. It was installed by Griffith Co.

The use of butane for automotive power is not new with the Griffith Co. It was one of the first to use this fuel on a large scale for commercial hauling, having converted 30 large dump trucks in 1935. These units were used for moving earth on the Cajalco Dam, near Riverside, Calif. The trucks moved 7,500,000 tons of earth. using 1,500,000 gals. of butane. The saving in fuel costs was tremendous and the use of butane by the company has been on the increase ever since.

Over 60 trucks are now converted to run on butane. The trucks are in constant use and run thousands of miles every month. Many

New storage and dispensing station in the Los Angeles yard of the Griffith Co., construction contractors. The butane tank holds 3700 gals. Dispensing equipment on right allows filling on both sides of "island."



Closeup of intake lines and pumping equipment used for filling trucks. On left may be seen steel post through which run intake and vapor return lines. Pump and motor are in center. Lines running to pumping island are set in cement in the foreground, directly in front of pump.

of them have been used on such jobs as Friant Dam, in California. A number of the trucks are now being used on the great Shasta Dam project in northern California.

Butane Triples Truck Life

In the past year 22 new Whites were equipped to run on butane, according to company mechanics. It is estimated that butane tripples the life of truck motors operating on this fuel. Motors that ran in Griffith trucks for more than 60,000 miles were recently equipped with their second set of rings. Wear on the cylinder walls was less than six thousandths of an inch. Oil is seldom changed before trucks have gone 15,000 miles and many times they run much longer between oil changes.

It is to service this fleet of trucks that the Griffith Co. recently installed the new butane dispensing plant. As many of the trucks are on location at jobs too far from the main plant to be serviced regularly, the average gallonage pumped by the plant varies. It may be as low as 500 gals. a day or as high as 2000 gals. The average is around 750 daily.

The new dispensing system consists of two islands, one housing the 3700-gal. butane plant, the other forming the base for complete dispensing equipment. Both islands are enclosed by heavy wire fence with posts set in concrete.

Same Equipment Served Cajalco

Most of the dispensing equipment, including the storage tank, was used by the company at the Cajalco project. This, in addition to new equipment, was furnished by Parkhill-Wade, Los Angeles. A new Smith 2-in. pump, manufactured by the Smith Precision Products Co., of South Pasadena, was installed for pumping from the storage tank.

This pump has a capacity of 60 gals. per minute.

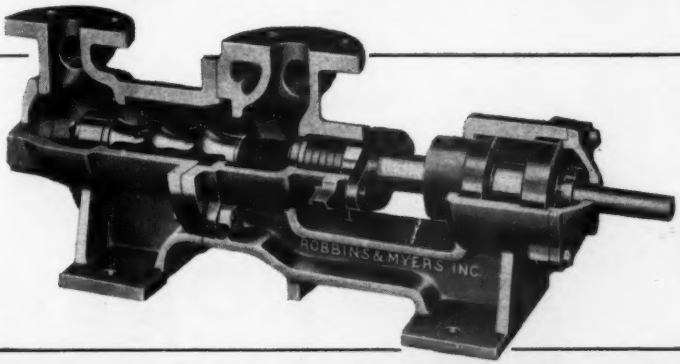
To safeguard the main filling lines running to the storage tank, a unique construction feature has been provided. The 2-in. filler and the 1-in. vapor return lines pass through a heavy steel post which has been imbedded in cement. If at any time the truck connections are forgotten and the driver of the butane supply truck should start to drive away without disconnecting them the well imbedded lines and supplemental equipment would hold, and only the truck connections would be broken. An automatic shut-off valve on the filler line insures against escape of liquid.

Other convenient features have been included in the design wherever possible and every precaution has been taken to make the dispensing system as safe as possible. Shut-off valves are available on all lines making it possible to shut off gas in case of leaks or repair. Safety valves have been included where necessary and a by-pass around the meter is available in case the meter must be disconnected for repair.

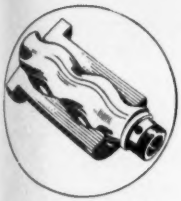
The system has been in use for several weeks and has proven entirely satisfactory for the maintenance of the fleet, however many of the company trucks may be in the yard at any one time.

The two 4000-gal. butane tanks of Mike Trammell, Sweetwater, Texas, who serves wholesale and domestic customers, four oil rigs, nine cotton gins and automatic equipment, as well as operating a bottle filling plant.

Safe, Trouble-Free Pumping of Butane and Propane



MOYNO L.P.G. PUMPS



Sectional view of Rotor and Stator

Here's the pump that's tailored for handling highly volatile liquids safely, economically, efficiently. Gentle in action . . . simple in mechanism . . . revolutionary in principle—it delivers at constant pressure with velocities not over 22 to 23 feet per second. The R&M Moyno L.P.G. Pump is self-priming . . . flow is uniform . . . turbulence is reduced to a minimum . . . vapor locking is eliminated. It's a "natural" for you, regardless of your set-up. Write today for detailed, descriptive folder on this remarkable pump.

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- ☆ "3-in-1" Oven
- ☆ "Glo" Broiler
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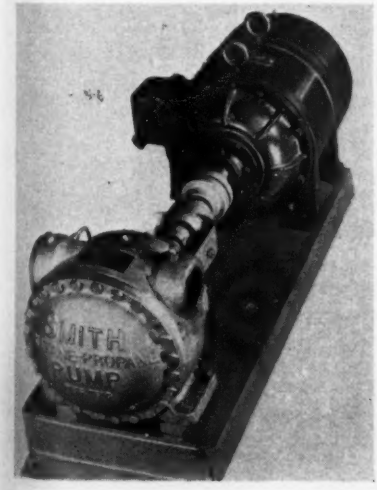
PRODUCTS

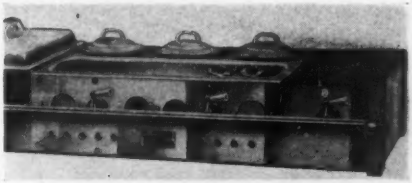
Bottling Service Pump

Smith Precision Products Co., 1135 Mission St., South Pasadena, Calif.

Model: 210.

Description: Designed especially for bottling service, this is a new model Smith Butane-Propane Pump. It is capable of handling differential pressures to 100 lbs. per sq. in. and has ample capacity at these pressures for rapid filling of single valve propane cylinders. The normal output capacity is 50 gallons per minute when direct connected to 3 or 5 h.p. explosion proof electric motor at 1800 r.p.m., as shown. Capacity can be adapted to suit requirements by varying the drive gear ratio within the pump. When required, these pumps may be geared for maximum output at 500 r.p.m. for direct connecting to regular tank-truck power take-off shaft.





Barbecue Machine

Dickerson Manufacturing Co., Springfield, Mo.

Model: Mexihot-F.

Description: This barbecue machine is insulated with asbestos to prevent heat loss and has a specially designed method of scientific heat circulation. The machine is 41 in. long and 16 in. wide, with a frying space 21 in. by 8¾ in. It has a special cast griddle and open burner for coffee makers and all-purpose heating.

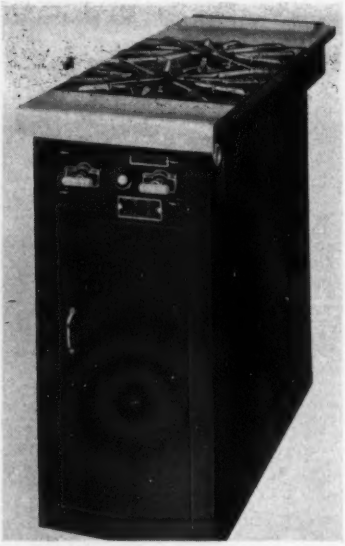
◆ ◆

Grate Top "Add-A-Unit"

American Stove Co., 4301 Perkins Ave., Cleveland, Ohio

Model: No. 220.

Description: The new Magic Chef "Add-A-Units" are ranges that serve the dual purpose of adding cooking capacity to present or future extra heavy duty range installations, or they can be used individually as single units. Each of the two burner grate frames has separate circular grates, self-draining to a drip pan below. Convenient top burner lighter; concealed, extra heavy manifold and gas cocks; large storage compartment with sturdy door located below cooking top. Full-on rating 15,000 B.t.u. for each burner; rating at low setting,



2000 B.t.u. each. Width, 16 in.; depth, 42 in.; height, 32 in.; shipping weight, 248 lbs. Single or double deck shelves available. "Add-A-Unit" also made with fry top, having actual frying surface of 14 in. by 19¾ in.

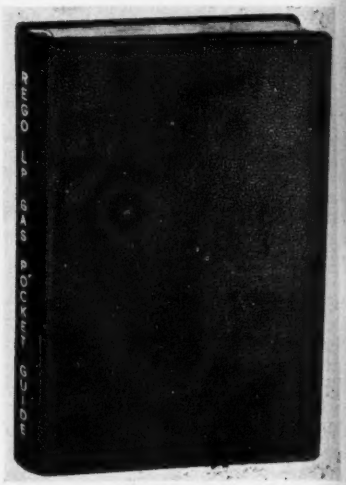
◆ ◆

Rego LP-Gas Guide

The Bastian-Blessing Co., 4201 Peterson Ave., Chicago, is offering to the liquefied petroleum gas industry a convenient reference manual in the form of the "Rego LP-Gas Pocket Guide."

The Guide contains basic data, charts, tables and other information relevant to the industry. It coordinates technical and specialized knowledge in connection with the merchandising and handling of liquefied petroleum gases and is prepared primarily to help the dealers' salesmen and servicemen to a better understanding of the product they sell, its characteristics and applications, as well as to furnish information that will be helpful in increasing sales and insuring maximum safety.

Pocket Guide sheets, 6¾ x 3¾ in., are inserted in a serviceable blue and yellow leatherette six-ring looseleaf binder. The binder, complete with all pages published to date, may be secured for 50 cents, prepaid, by writing The Bastian-Blessing Co. Supplementary looseleaf pages will be mailed from time to time to all binder holders without additional charge for as long as the present publishing procedure is used.



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Catalog of Indicating Instrument Issued by the Meriam Co.

An eight-page catalog, No. C-10, which describes U-type and well-type manometers, draft gages, flow meters, mercury pressure gages, tank gages and other accessories for accurately measuring pressures, vacuums and flows of liquids and gases has been issued by The Meriam Co., 1955 W. 112 St., Cleveland, Ohio.

He Called the Right Man!

If you are operating on surplus natural gas—or if your production depends upon manufactured gas—the war is making you more alert to the necessity of a Butane Stand-by Plant to protect your gas supply against any eventuality. You get the fastest and most intelligent action, and the most satisfactory final results when you entrust this problem to the right man—and that is a Ransome engineer. You may submit your problems without incurring obligation.

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RESEARCH

• **BUTANE-PROPANE** *News* **wishes to keep its readers informed regarding technical and practical advances concerning research, manufacture, development, and transportation in the liquefied petroleum gas field. In this column will be found a resume of recently published articles, papers, bulletins and books dealing with the industry's various phases.—Editor.**

C. N. G. A. Bulletin TS-411 Tentative Standard Method for Analysis of Natural Gas and Gasoline by Fractional Distillation—A late bulletin of the California Natural Gasoline Association which is a revision of TS-311 and TS-321. It incorporates improvements in fractional distillation procedure and apparatus since the earlier bulletins were issued. Contains 35 pages of text and 14 drawings and charts. Member price: $2; non-members, $2.50. 510 West 6th St., Los Angeles.

The System Aniline-Chlorobenzene—K. E. Coulter, R. A. Lindsay and E. M. Baker. *Industrial and Engineering Chemistry,* Oct., 1941, pp. 1251-1253. The apparatus described is a modification of an equilibrium still to permit the determination of liquid and vapor equilibria at pressures below atmospheric. The liquid-vapor equilibria for the system aniline-chlorobenzene at pressures below atmospheric are given to facilitate the design of vacuum distillation equipment. These equilibria present the unusual feature of a lower relative volatility with lower pressures.

Sludge Formation in Distillate Fuel Oils—R. J. Hawes and F. M. Miller. *Industrial and Engineering Chemistry,* Oct., 1941, pp. 1318-1320. Storage of distillate fuels to meet the seasonal demand leads to the formation of small amounts of tarry sludge which interfere with operation of equipment and increase servicing requirements. The nature of this sludge has been studied and the mechanism of its formation is discussed. Methods for determining sludge content and sludge stability of furnace oils are described.

Liquid-Liquid Extraction Data—D. F. Othmer, R. E. White and Edward Trueger. *Industrial and Engineering Chemistry,* Oct., 1941, pp. 1240-1248. Considerable data of a physical-chemical nature form the fundamentals upon which the development of liquid-liquid extraction processes may be based. Among these data are the solubility relations—mutual solubility and distribution coefficients—for the constituents involved. These relations cannot yet be predicted but must be obtained experimentally. The usual extraction system involves three liquid components—one pair of immiscible liquids and two pairs of miscible liquids. When the three components are present in such quantities that two liquid phases exist, the common miscible liquid distributes itself between the immiscible pair in accordance with the distribution law. The presence of miscible liquid increases the solubilities of the immiscible pair in each other; in other words, the mutual solubility increases. When two phases exist, they are mutually saturated and a plot of these compositions, on triangular coordinates, of these saturated phases give the so-called mutual solubility curve. Simple and rapid methods for determining accurate data for these relations have been developed through modification of previously developed methods. Several methods of correlat-

ing the distribution data have been investigated in an effort to evaluate their advantages. Distribution and mutual solubility data and representative plots for a number of systems of acetic acid-water-solvent, acetone-water-solvent, and ethyl alcohol-water-solvent are given. These systems are of commercial importance since extraction processes involving them are used industrially and are the bases of many patents.

Sulfur Compounds in Petroleum and Its Derivatives—H. Bottomley. *Oil and Gas Journal,* Oct. 23, 1941, pp. 37, 38. Refiners, petroleum technologists and equipment companies are impartially studying all means for improving the octane value of gasoline. Of prime importance is the preparation of high octane aviation gasolines which could easily lead to robbing the automotive fields of some antiknocking components. Any switch of this type can be equalized by the addition of tetraethyl lead but the degree of lead response varies greatly among gasolines. Therefore, in order to get the most out of the lead the chemical nature of the gasoline should be altered by chemical treatment in advance in order that it be most receptive. This represents true conservation. Since sulfur and its compounds have a depressing effect upon the responsiveness of tetraethyl lead their removal or conversion in form prompts timely study and in this article a valuable and timely series of tests is described to add to the practical suggestions already made available to refineries.

Correcting Engine-Test Data by Means of a Nomograph—R. O. Kinsey and E. E. Batzell. *Oil and Gas Journal,* Oct. 30, 1941, pp. 40, 41. Presentation is made by the authors of a nomograph for correcting observed data to standard when determining the brake horsepower of an internal-combustion engine. This replaces a simple but cumbersome formula used for the purpose.

Fractionating Performance of a Dephlegmating Condenser — R. W. Timmerman and C. L. Nickolls. *Industrial and Engineering Chemistry,* Oct., 1941, pp. 1230-1233. Measurements of the separating efficiency of a dephlegmating condenser were made under different operating conditions. A condenser of engineering laboratory scale was used. Binary mixtures of methanol and water were employed in the tests. A greater separating efficiency was obtained with parallel flow of cooling liquid and condensing vapor (both flowing upward) than with the countercurrent flow (vapor flowing upward.) The use of reasonable high vapor velocities gave better fractionation than low velocities. With parallel flow of vapor and liquid, the efficiency increased definitely with increasing reflux ratio; with countercurrent flow the efficiency decreased slightly with increasing reflux ratio. A wide variation in concentration of the entering vapor had but a small effect on the theoretical plate equivalent separation obtained.

Simplifying the Fuels and Lubricants for Our Mechanized Fighting Forces — C. M. Larson. *National Petroleum News,* Oct. 15, 1941, pp. R-323, etc. Only through the cooperative planning of oil companies, equipment manufacturers and Army, Navy and Federal agencies, can the fuel and lubricant requirements of the nation's fighting forces be efficiently met. The problem is complicated by the need for products which will satisfactorily service highly developed equipment, in varied climates; by too closely drawn specifications, in some instances, which limit the field of usefulness; and by transport difficulties in making supplies available at needed points, even in blackout maneuvers. It is shown that simplification of requirements, and standardization of nomenclature and specifications have already brought about progress in overcoming the difficulties, with representatives of industry working with the War Department

Committee of Liquid Fuels and Lubricants and the Bureau of Ships and Bureau of Aeronautics, of the Navy. Industry is further called upon to convert their equipment requirements to the standard nomenclature for fuels and lubricants, as set up by these agencies.

Prediction of Ignition Points of Diesel Fuels in the Laboratory—G. Verberg. *Refiner*, Oct.. 1941, pp. 83, 84. Summarizing the results of 42 oil tests it has been shown that the Diesel index and the Cetene value (by Marder) are well adapted as laboratory methods for determining the fuel or ignition characteristics of Diesel fuels, which are widely distributed and used in commerce and industry.

Prepared to Fight Fire — C. B. White. *National Safety News*, Oct., 1941, pp. 66, etc. First-aid fire extinguishers have kept many an incipient blaze from swelling industry's fire losses. The extinguishers did the work because they were built according to rigid specifications, and also because purchasers followed instructions for maintenance and instructed employees in their use.

Gasolines from Processing Gas Condensate—Davis Read, Jr., and Gustav Egloff. *Oil and Gas Journal*, Oct. 16, 1941, pp. 49. etc. Recovery of gas condensate in the recycling operation of deep fields has been steadily increasing. These gas-condensates contain hydrocarbons that can be readily converted into aviation gasoline components by insomerization and alkylation. Tables: Properties of distillate stock; Factionation of distillate stock; Reforming results — Dubbs pilot plant; Complete analysis of reforming-plant gas and gasoline; Laboratory debutanization of reformed gasolines; Aviation-gasoline blend; Motor fuel blending yields and proportions in blends; Motor fuel blending of properties of blends.

Engineering for Better Fuel Economy—H. T. Youngren. *S.A.E. Journal*, Oct., 1941, pp. 433-441. This paper reviews the experience of one company in spite of the demand for increased performance and the rising trend of car weight which has been occasioned by advance styling and appearance items. The data presented indicate how air-fuel ratios have been improved and compression ratios increased over a period of years, and some of the other factors influencing fuel economy. The effects of compression-ratio increase are discussed along with the use of higher octane fuel and the necessity of proper choice of performance factors to obtain maximum benefit of these factors to get the best economy. Among other things discussed are effect of high versus lower performance factors and the effect of different rear-axle gear ratios. A comparison of a small, high-speed engine versus a large, low-speed engine is made along with data on the effects of engine friction and mechanical efficiency, since it is evident that any fuel economy obtained by reducing engine speed has really been due to the reduction of engine friction along with higher throttle operation for a given car speed.

Distillate Production for Direct Utilization. *World Petroleum*, Annual Refinery Issue, 1941. pp. 60-65. While small in volume distillate production from pressure maintenance plants has valuable characteristics requiring minimum treatment to make it available as motor fuel—may help to relieve possible strain on refining and transportation facilities during emergency.

Refiners to Concentrate on 100-Octane—J. C. Morrell and Gustav Egloff. *World Petroleum*, Annual Refinery Issue, 1941, pp. 70-75. Processes that assure U. S. of continued leadership in production of 100-octane for aviation fuel reviewed. Capacity may be trebled to meet war demand.

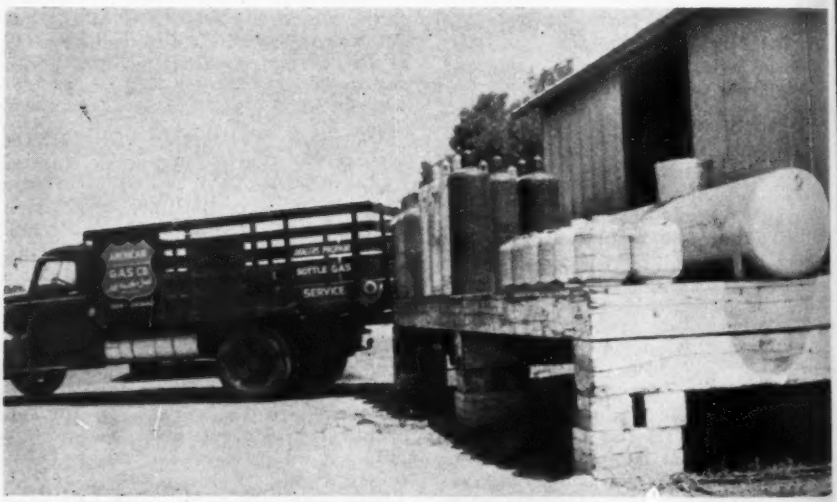
Cylinder Pick-Up System Makes Cash Register Click Faster

By O. D. HALL

THE American Butane Gas Co., of Oklahoma City, Okla., has accomplished a substantial increase in its business by establishing a propane bottle delivery and pick-up service for about 300 local retail dealers in Oklahoma.

From trucks which travel over its territory, the company keeps these dealers — mostly hardware and furniture store owners — supplied with 100% propane gas in 100-lb. cylinders, exchanging filled cylinders for empty ones. The empties are taken back to the company's loading dock in Oklahoma City for refilling and re-delivery.

While the company continues its general business of selling and installing aboveground propane tanks and selling and delivering LP-Gas in trucks; also, selling, installing and servicing LP-Gas appliances, general equipment and fittings, it was recently discovered that many local merchants, particularly the hardware and furniture dealers, could increase their sales if they could secure, delivered at their



LP-Gas bottle loading and filling platform of the American Butane Gas Co., Oklahoma City. One of the delivery trucks and 100-lb. cylinders are shown in background. In foreground are 5-gal. bottles and a 218-gal. (water capacity) aboveground propane tank.

Defense Savings Pay-Roll Allotment Plan

How company heads can help their country, their employees, and themselves

voluntary pay-roll allotment plan

helps workers provide for the future;

helps store up tomorrow's buying power;

helps defend America today.

Business heads are adopting the Voluntary Pay-Roll Allotment Plan as a simple way for every worker to start a *systematic* and *continuous* Defense Bond savings program. It is a sensible step toward reducing the ranks of the post-war needy. It will help spread the financial participation in national defense among all of America's wage-earners. It will materially retard inflation by "storing" part of our pyramiding national income, thus reducing the demand for our diminishing supply of consumer goods.

In emergencies, America doesn't do things "hit-or-miss." We would get there *eventually* if we just left it to everybody's whim to buy Defense Bonds when they thought of it. But we're a nation of businessmen who understand that the way to get a thing done is to *systematize* the operation. That is why so many employers are getting back of this voluntary savings plan.

DSS—SP 1A

All you have to do is offer your employees the convenience of having a fixed sum allotted from each pay envelope to the purchase of Defense Bonds. Each employee who chooses to start this savings plan decides the denomination of the bonds to be purchased, and the amount to be allocated from his wages each pay day. You deliver a bond to the employee each time his allotments accumulate to a sufficient amount.

Plenty of help available. The Treasury Department is ready and willing to give you all kinds of help. Local civilian committees in 48 States are set up to work with you just as much as you want them to, and no more. We will supply most of the necessary material.

The first step is to take a closer look. Writing for details in no way obligates you to install the plan. It simply indicates that you'd like to do *something* to help keep your people off relief when defense production sloughs off; *something* to enable *all* wage-earners to participate in financing national defense; *something* to retard inflation and store up tomorrow's buying power. So, write for the free kit of material being used by companies that have installed the Voluntary Defense Savings Pay-Roll Allotment Plan. Address: Treasury Department, Section A, 709 Twelfth Street NW., Washington, D. C.

Tank truck of the American Butane Gas Co., Oklahoma City, Okla. Notice the pump installation just to the rear of the cab.

doors, LP-Gas in cylinders and were not required to wait for a new supply while their cylinders were sent in for refilling. The company, therefore, established its new service

The plan differs from many others in that arrangements are not made for one or two exclusive dealers in each town. The company delivers the filled cylinders and picks up the empties for any and all merchants in each town who wish to handle LP-Gas in that way.

The company sells cylinders, regulators and fittings to make up a complete propane system. The dealers pay cash for the propane but the cylinders sometimes are loaned to the dealer where his credit rating is good.

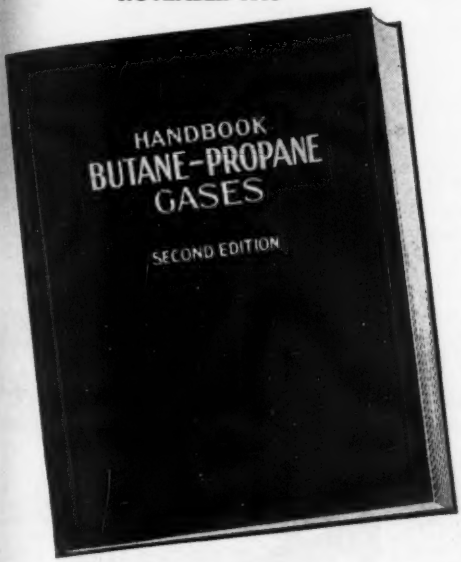
These propane cylinder systems are manufactured, equipped and fueled to withstand any possible weather conditions, so that the gas always is available at proper pressures, said J. L. Grigsby, president of the company. The cylinders are built to withstand a maximum of 300 lbs. pressure.

"These new operations have brought about a big increase in our sales," states Mr. Grigsby. "Our only trouble just now is to secure prompt delivery of cylinders, equipment, fittings and appliances in which steel, brass, copper and aluminum are used. Due to the big national defense program there is a shortage of these materials commonly used in our business. This particularly is true of brass for underground and aboveground LP-Gas systems. Our new plan for selling propane in cylinders helps us to relieve this situation.

Handbook
BUTANE-PROPANE
GASES

LATEST REVISION
NOVEMBER 1938

SECOND EDITION



415 Pages

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CONTENTS: Semi-Bulk Distribution: Use of Butane in Buses: Combination Propane Operated Utility Plant: Use in Internal Combustion Engines: Design & Installation of Storage: Supply from Petroleum Refineries: Engineering Data on the Lower Olefins: Domestic Appliance Testing and Utilization: Economical Comparisons with Coal, Oil, Electricity, Producer Gas, Manufactured Gas: Town Plants: Manufacture from Natural Gas: Special Uses: Volume Correction Factors: Transportation: Use with Other Gases: Analysis & Testing: Properties of Mixtures: Bottled Gas Distribution: Bibliography: Central Plant Directory: Catalog Section.

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BUTANE-PROPANE *News*

1709 West 8th Street, Los Angeles, Calif.

"In spite of some uncertainties presented by the national defense picture, the present outlook in Oklahoma is the best the LP-Gas industry has ever experienced. Crop returns are the best in many years and prices on farm products are generally improved. The farmer and his family are demanding the best in conveniences, and the field is ripe for more and more business without resorting to any unfair competition within the industry."

L. L. Kessler, sales manager of the American Butane Gas Co., reported that so far for 1941, his company has sold five times more ranges than for the same period last year, with gas sales doubled.

U. C. Roney Opens New Plants In Corsicana and Ennis, Texas

U. C. Roney has opened two butane gas plants in central Texas. Headquarters will be at Corsicana and the other plant at Ennis.

The firm, known as The Butane Gas Co., located on U. S. Highway 75 north of Corsicana, handles a complete line of butane gas appliances. A warehouse and service department is maintained.

◆ ◆

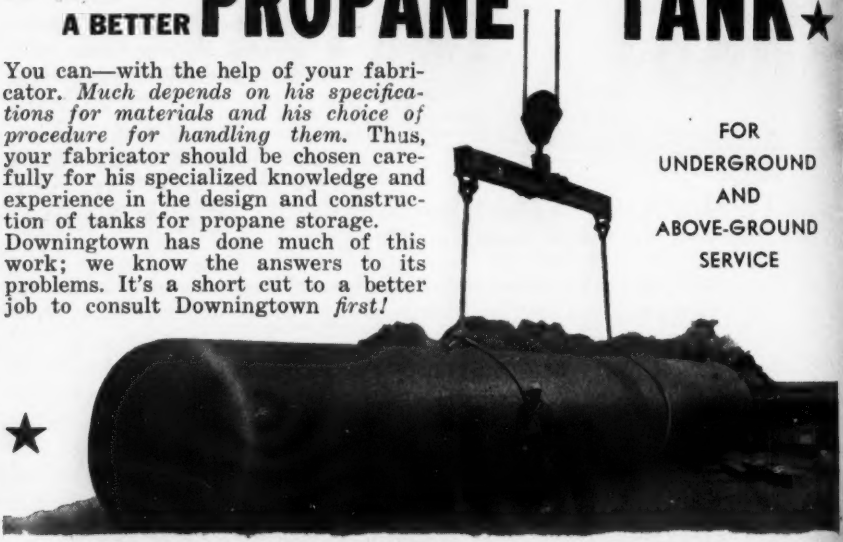
F. A. Engel To Handle Propane in Alturas, Calif.

Announcement has been made that F. A. Engel is now in charge of the agency for Union Oil Co. propane bottled gas in Alturas, Calif. His offices are located at 1832 South Estes St.

HOW TO MAKE A BETTER **PROPANE TANK** ★

You can—with the help of your fabricator. *Much depends on his specifications for materials and his choice of procedure for handling them.* Thus, your fabricator should be chosen carefully for his specialized knowledge and experience in the design and construction of tanks for propane storage. Downingtown has done much of this work; we know the answers to its problems. It's a short cut to a better job to consult Downingtown *first!*

FOR UNDERGROUND AND ABOVE-GROUND SERVICE



★

DOWNINGTOWN IRON WORKS • Downingtown, Pa.

Reznor Suspended Heaters Used At Des Moines Ordnance Plant

The Reznor Manufacturing Co., Mercer, Pa., is supplying gas-fired suspended unit LP-Gas heaters for the Des Moines (Iowa) Ordnance Plant which will be in operation soon.

The equipment will consist of propeller fan type, gas-fired suspended unit heaters, 10 of which will have a capacity of 200,000 B.t.u. per hour, or a combined input capacity of 8,000,000 B.t.u. per hour. The equipment was purchased on an A-1-b priority rating .

◆ ◆

Washington Utility Changes Butane Plant Managers

Two employes of the Northwestern Natural Gas Co., with headquarters in Grandview, Wash., have recently received transfers to different locations.

Emmett Crowley, of Kennewick, goes to Sunnyside, where he will have charge of the company's butane plant, and Wayne Stone, also of Kennewick, will handle a similar plant at Prosser. J. W. Rider will remain as watchman at the depleted natural gas fields of the company.

◆ ◆

Washington Power & Gas Co. to Operate LP-Gas Plant in Pasco

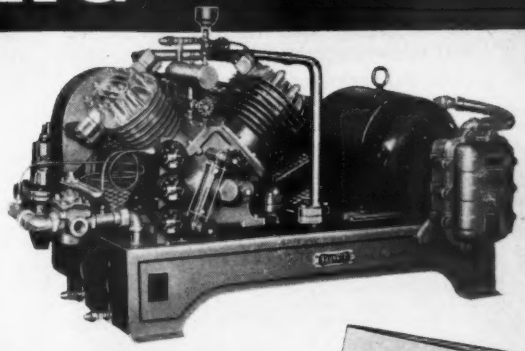
The Washington Power & Gas Co., a Yakima, Wash., concern, has taken over the operation of an LP-Gas plant erected about a year ago by the Washington-Idaho Liquid Gas Co., at Pasco, Wash.

During the last month, the new company has received and disposed of three tank car loads of LP-Gas.

SPEED UP TANK CAR UNLOADING

UNNER LP-GAS UNIT Reduces s Loss . . . Pays Dividends Daily

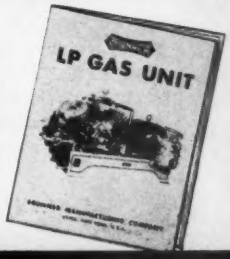
ere's a unit which not only recovers 0 to 1000 additional pounds of s per tank car unloaded, but also eeds up car unloading. In addition, e Brunner LP-Gas Unit cuts bottle fill-g time by as much as 25%. Add up ese savings—see how Brunner Units uickly pay for themselves. Brunner anufacturing Co., Utica, N. Y., U. S. A.



BRUNNER

Write for FREE Booklet

The new booklet describes the Brunner LP-Gas Unit, contains illustrations, diagrams and other pertinent facts on handling liquid petroleum gas.



OR OVER 30 YEARS THE SYMBOL OF QUALITY

"Keys" to OPM Orders

Letters appear in front of O.P.M. orders. Their meanings are significant, for they determine when you will get your needed material. Here are the explanations:

"M" orders are those designed to regulate the distribution and flow of a given material into defense and essential civilian channels.

"P" orders are limited blanket-rating orders which help the company holding them to get material.

"E" stands for equipment. So far, only machine tools and cutting tools have been covered by these orders.

"L" orders are limitation orders, setting limits on production of the materials or items covered.

Edwin Flato Co. Will Hold Second Winter Cruise Contest

The Edwin Flato Co., of Corpus Christi, Texas, distributors of Servel Electrolux and Chambers gas ranges is rounding out its second annual "Winter Cruise" contest for dealers and salesmen in south Texas.

An estimated party of 35 will sail on the S. S. Sixaola, United Fruit Co. liner, on Dec. 31, from New Orleans, for an eight day all-expense cruise to Guatemala and Honduras.

◆ ◆

Electric and Carburetor Engineering Co. Expands

The Electric and Carburetor Engineering Co., of Los Angeles, manufacturers and distributors of LP-Gas equipment, have recently completed an expansion program which doubled the size of their plant at 2323 E. 8th St. The new floor space has been used for the addition of a complete machine shop.

Part of the shop's production capacity will be used for the manufacture of national defense equipment, the remainder being used to turn out Thickston manifolds and other LP-Gas items. E. E. Tattersfield, head of the organization, states he does not anticipate that present defense work will interfere greatly with the construction and progress of their line of manifolds.

Four new men have been added to the personnel of the company. Included is R. T. Radcliffe, new office manager and purchasing agent. Mr. Radcliffe is well versed on priority procedure and has assisted greatly in this capacity.

In addition to shop and personnel additions, the company's stock of LP-Gas equipment has been greatly increased during the past month. This was made possible through the purchase of the complete LP-Gas merchandising department of Parkhill-Wade by the Ransome Co. of Emeryville, Calif. As Southern California representative of the Ransome Co., the Electric and Carburetor Engineering Co. will carry the merchandise formerly maintained in the Los Angeles office of Parkhill-Wade. The latter company will continue its LP-Gas engineering and construction work from their Los Angeles headquarters.

◆ ◆

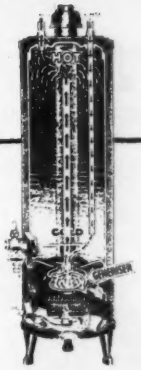
Skelgas Erects Two Bottling Plants in Minnesota

New bottling and distribution plants for LP-Gas have been erected at Grand Rapids and Detroit Lakes, Minn., by the Skelgas Division of the Skelly Oil Co.

Each plant will serve Skelgas dealers and distributors in the areas surrounding those towns.

Feature for Feature...

THE BEST WATER HEATERS IN EVERY PRICE CLASS!



Manufactured in every size and price range, General Water Heaters build load and good will everywhere they're sold. Every unit backed by *liberal and truthful guarantees.* Be SPECIFIC—Recommend GENERALS!

L.P.G*eneral*

WATER HEATERS

SPECIFICALLY MADE FOR BOTTLED GASES

General Water Heater Corp., 7 East Cypress Avenue, Burbank, Calif.
San Francisco • Detroit • Kansas City • Dallas • Houston • Memphis

DISTRIBUTED IN PRINCIPAL CITIES THROUGHOUT THE NATION

Are you getting these EXTRA PROFITS?

● Dollars of additional LPG sales are waiting for you in the huge food service market. Every hotel, restaurant, lunchroom, church or institution is a large potential user of your LPG. Get more of this business by selling Blickman food service equipment—especially designed for use with LPG. Blickman equipment is unmatched in reputation for good design and excellent construction. It will build goodwill for you through years of low-cost, trouble-free operation—at the same time adding dollars to your LPG sales.

Send now for catalogs showing our complete line. Every item is an LPG sales builder.

S. BLICKMAN, INC.
Manufacturers of Food Service Equipment
WEEHAWKEN, N. J.

We would like to increase our LPG sales with your food-service equipment. Please send catalogs showing complete line including Coffee Urns, Steam Tables, Luncheonettes, etc.

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BPN-1-41

Annual L.P.G.A. Meeting To Be In Kansas City Auditorium

When members of the Liquefied Petroleum Gas Association attend the next annual meeting in Kansas City, Mo., Feb. 23-25, they will convene in the $6,500,000 municipal auditorium for sessions, exhibitions and some of the entertainment functions planned for the occasion. (See photo on this page.)

This is one of the outstanding convention buildings in the United States, having 32 separate units, all of which may be closely knit together for convention purposes. At least three of the main units will be used by the L.P.G.A.

When business sessions are over and exhibits closed, the local convention and visitors' bureau of the chamber of commerce will see that delegates do not have any idle hours, for Kansas City is rich in interesting attractions—from famous art galleries and museums to the great meat packing houses—and opportunity to indulge a wide range of attractions will be offered those who want to tour this historic city.

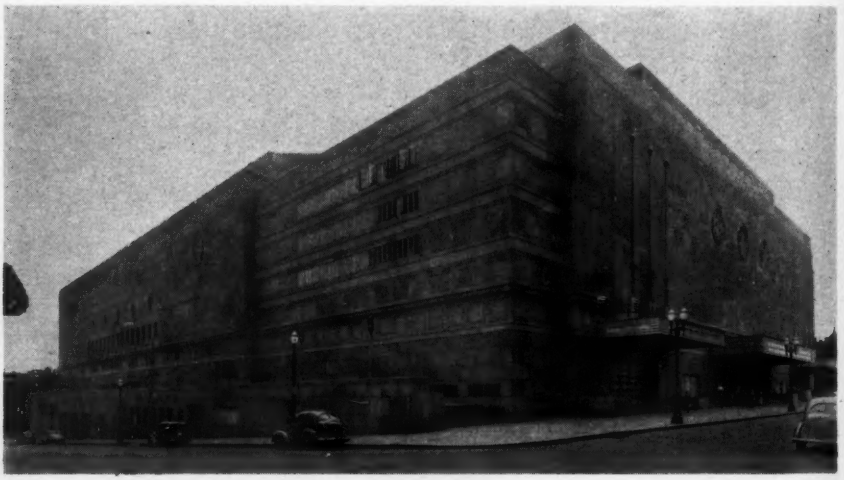
Those interested in contracting for exhibit space should write to Frank R. Fetherston, secretary of the Association, at 11 West 42nd St., New York City.

◆ ◆

Carlisle Hardware Co. Holds Cooking School in Minnesota

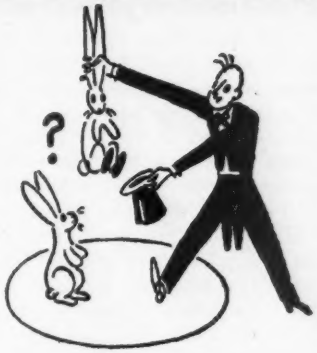
The Carlisle Hardware Co., Detroit Lakes, Minn., held a Fall "Pyrofax Gas-Magic Chef" cooking school in the high school auditorium of that city. Housewives of Becker county were invited to attend the sessions which were directed by Olga V. Hanscomb, food lecturer and counselor from St. Paul.

Preparations for the school were made by W. B. Carlisle of the Carlisle Hardware Co. and Elmer Hansen, representative of Pyrofax products in that area.



The Kansas City municipal auditorium, meeting place of the 1942 Annual LP-Gas Convention.

We're not magicians but we are working wonders on deliveries!



We don't have to remind you that defense restrictions are causing shortages . . . but we still are making prompt deliveries on most of our lines. Write or wire us your needs—we may be able to take care of you pronto!

SOUTHERN GAS & EQUIPMENT CO.

Little Rock, Arkansas

ALL TYPES LPG EQUIPMENT

Birmingham, Alabama

"Serving Arkansas, Louisiana, Missouri and the Southeast"

an all-time *record!*

Despite the biggest volume of business in our 93-year history, including orders for national defense, we have been able, to date, to fill all orders for Blodgett Streamlined Baking and Roasting Ovens on schedule!

THE G. S. BLODGETT CO., Inc.
53 Maple Street Burlington, Vermont

Vernon Keene Buys School Plant at Moorpark, Calif.

The butane gas plant of the Moorpark (Calif.) elementary school has been sold to Vernon Keene, representing the Butane Appliance & Gas Co., Inc., of Van Nuys, for $900. Six bids were submitted, ranging from $250 to $900 for the entire equipment, with the exception of the pipe lines, which will be used in connecting with the Southern Counties' mains. Mr. Keene's company acquires the tank fence and all installation connections.

The butane plant had been installed in the school pending the time when the Southern Counties Gas Co. could deliver natural gas to the institution.

◆ ◆

Brading Gas Service Co. Buys 1300-Gal. Transport

Brading Gas Service Co., Inc., of Waynesville, N. C., 30 miles from Asheville, N. C., which has the Esso-tane dealership for Asheville, Hendersonville, Brevard and several smaller towns, is now commencing to handle butane systems. The company was organized the middle of last July. They already have 75 customers.

Stanley Brading, president of the company, was in Dallas, Texas, in October taking delivery on a 1300-gal. butane-propane transport fabricated by Dallas Tank & Welding Co.

◆ ◆

Harry B. Ward Buys LP-Gas Corporation in Ephrata, Pa.

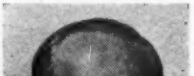
Harry B. Ward has purchased all capital stock of the McNay Gas Corp., 535 So. State St., Ephrata, Pa. from I. N. McNay. Mr. McNay was one of the pioneers in the liquefied petroleum gas business, having founded his company in 1924.

Mr. Ward, formerly of Manhasset, L. I., studied law and accounting at Columbia University and has been successfully engaged in business for the last 20 years. Mrs. Ward is secretary of the newly-purchased firm.

◆ ◆

C. Lloyd Cain Will Represent Butane-Propane *News* in N. Y.

Recently ending an association of 18 years with the *Oil and Gas Journal*, in which he variously served as Eastern representative and advertising manager for the home office, C. Lloyd Cain has joined the staff of BUTANE-PROPANE *News* and opened offices in New York at 110 East 42 St.



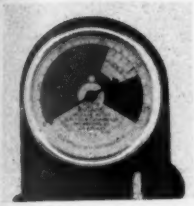
C. LLOYD CAIN

During his long connection with the *Oil and Gas Journal*, Mr. Cain handled all sales in the Eastern territory for the *Journal*.

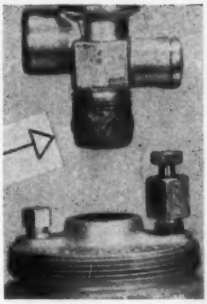
His entry into the publication field followed immediately upon his graduation from Colgate University with the degree of B.S. First with the Frank A. Munsey Co., and later with McGraw-Hill Publishing Co., he learned the fundamentals of magazine publishing as a member of the staff of *Chemical and Metallurgical Engineering*.

Mr. Cain's intimate knowledge of the oil and gas industries, together with his wide acquaintanceship with the industry leaders throughout the East, particularly fit him for his present work on BUTANE-PROPANE *News*. The LP-Gas division of the oil and gas industries, being relatively new, will find very valuable his thorough understanding of the many problems yet to be solved.

NO PRIORITY NUMBERS---YET?



MILEAGE METER will increase mileage 10% by telling driver whether or not engine is being driven at maximum efficiency. Inexpensive—easy to install.



BU-SEAL sets without permanent hardening (valves may be removed) —is not soluble in water, oil or gas.

ELECTRIC AND CARBURETOR ENGINEERING CO.

"Pioneers of the Butane Industry"

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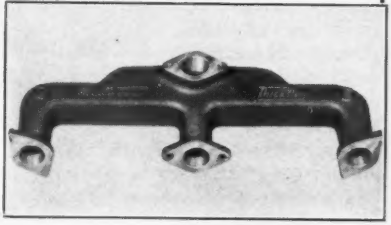
ThicksTun

Butane Manifolds

offer you at least 21% more power and 10% better mileage over the standard gasoline type manifold. Features are: Extremely Cold Type, Even Distribution, No Restrictions, Proper Heat Dissipation, Bigger Internal Area, Greater Efficiency. Made for International, GMC, Ford V-8, Chevrolet and Dodge.



Wishing You

LOADS and LOADS

OF THE *Best* FOR

1942

Anchorgas

Greetings and best wishes to our many friends.

ANCHOR PETROLEUM COMPANY

Atlas Life Bldg. Tulsa, Okla.

G. L. Brennan Will Direct LP-Gas Division for Warren

Indicative of the importance of liquefied petroleum gas production and sales, H. E. Felt, vice president of Warren Petroleum Corp., in charge of the Liquefied Petroleum Gas Division of that company, has announced the appointment of G. L. (Jerry) Brennan as manager of that division, effective Dec. 1. Mr. Brennan has been with Phillips Petroleum Co. for nearly 13 years, resigning as assistant manager of the Special Products Department of that firm to accept his new position.

G. L. BRENNAN

Sales of liquefied petroleum gas products in 1935 by Warren Petroleum Corp. totaled only about 55,000 gals., whereas in 1940 the sales were more than 47,000,000 gals. And this year, sales by the company have shown a very substantial increase over 1940. Much of this business has been developed during the past two or three years by Warren.

Mr. Brennan has had wide experience to fit him for his new position. Born in Devils Lake, North Dakota in 1896, he was educated in the high school there and was graduated from the University of North Dakota in 1919 with a degree of bachelor of science in mining engineering. He went with Phillips Petroleum Co. in February, 1929, his first work being the making of a survey of liquefied petroleum gas marketing conditions. He was made sales manager of the Liquefied Petroleum Gas Division of Phillips, which supplied public utilities, and later became manager of wholesale sales to industrial and utility companies located in the Detroit area.

In his new position, he will now make his home in Tulsa, Okla.

In addition to Mr. Brennan, Mr. Felt's staff in the Liquefied Petroleum Gas Division of Warren Petroleum Corp. consists of Fred J. LaFortune, P. J. Hoagland, Allen S. James and Kenneth T. White.

◆ ◆

Ransome Buys Merchandising Department of Parkhill-Wade

Parkhill-Wade, Los Angeles, LP-Gas engineers and contractors, have discontinued all activities of its merchandising department in both Los Angeles and Fresno, Calif., according to an announcement coming from C. L. Parkhill early in December. The entire inventory of LP-Gas supplies and conversion equipment has been sold to the Ransome Co., of Emeryville, Calif.

This move on the part of Parkhill-Wade is due primarily to the great increase in the volume of its engineering and construction activities in the liquefied petroleum gas and petroleum fields. With considerable work of this type now under contract, executives of the company have decided to devote their entire time and all facilities to the handling of emergency projects and other contracts.

The company reports that a large volume of work is already under contract in the Mid-Continent area, with other work pending in that area and the Pacific Coast section. It is expected that full speed ahead on this type of work will require the services of company engineers and workmen for some time to come.

The offices of both the Los Angeles and Denver branches are being maintained at the same addresses.

INSTALLED IN A FEW *Hours*

REZNOR Suspended Gas Unit Heaters

HERE'S the heater that has the widest range of industrial and defense applications. Reznor suspended heaters deliver heat directly to the spot you want it, and move more warm air over wider areas than any others. Since only a gas line and electricity are needed, installations are quick and easy. Not only fuel costs due to intermittent firing, but also maintenance and installation expenses hit a new low. There's a Reznor representative near you. Write today for catalog U 42.

Reznor Manufacturing Co., 304 James St., Mercer, Penna.

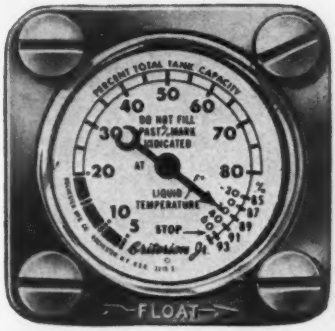
"GAS HEATERS EXCLUSIVELY SINCE 1888"

SAFETY FIRST . . . LAST and ALWAYS

with ROCHESTER GAUGES on the Job!

Rochester Criterion Gauges incorporate the famous Rochester magnetic principle of operation which assures greater accuracy and positive leak-proof construction. Listed as Standard by Underwriters' Laboratories and distributed by manufacturers of L.P. Gas Systems. Adaptable to both above-ground and underground Systems also in I.C.C. and ASME Cylinders.

MANUFACTURERS! Specify Criterion Gauges on Your L.P. Gas Systems!



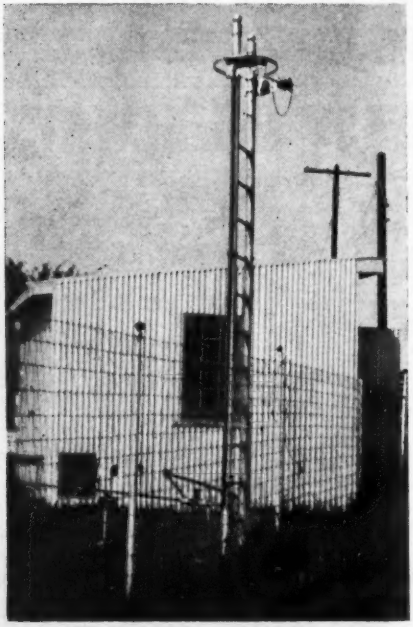
Rochester Mfg. Co., Inc. - 17 Rockwood St. - Rochester, N. Y.

ROCHESTER *Criterion* GAUGES

Safety Ladder of Welded Pipe Aids Unloading Operation

A simple yet practical safety ladder has been designed and constructed by H. W. Wageley, Essotane distributor for use in car unloading operations at his Charles Town, W. Va., bulk plant. The ladder is made of 2½-in. pipe uprights with 1-in. welded pipe rungs, set solidly in a block of concrete, and so located that it just clears the side of a tank car spotted on the siding for unloading.

The discharge and vapor return lines are fastened to the sides of the ladder with strap iron, each terminating at the top in a hose coupling which is in turn fastened to an angle iron plate welded to the vertical pipes forming the side pieces.



Safety ladder at car unloading location, bulk station of H. W. Wageley, Charles Town, W. Va.

Above the angle plates and welded seeurely to both plates and ladder is a safety ring 24-in. in diameter made of rigid strip steel. The ring provides security for the operator who is connecting the hoses from the lines to the car, and is particularly useful in snowy or sleety weather. The amount of hose required for unloading operations is also materially reduced, eight feet of each size being ample to make a connection that usually requires at least a 30-ft. length. (Photo on this page.)

◆ ◆

A.G.A. Approval Committee Adopts Two Standards

At the forty-eighth meeting of the American Gas Association's Approval Requirements Committee, held on Oct. 22 in Atlantic City, two sets of standards were reviewed and approved. These include a revised edition of American Standards for gas-fired refrigeration and initial requirements for flexible metal tubing and fittings for gas appliance connectors. Both are being placed in the hands of the American Standards Association for acceptance as American Standard.

◆ ◆

Butane Replaces Natural Gas In Town of Mobton, Wash.

Butane recently replaced natural gas in Mabton, Wash., when the North Western Natural Gas Co., of that city, placed a new $4000 butane plant in operation.

The plant, similar to those used in other towns by this company, is of the modern automatic type. The tank holds 5500 gals. of butane and will supply Mabton during two months of cold weather. The supply is brought by truck from Grandview, Wash.

The dwindling supply of natural gas from the Rattlesnake Hills field of the company necessitated the change to liquefied petroleum gas.

For Greater STABILITY

IN DEHYDRATED BUTANE AND PROPANE

A Higher Quality Product . . . . A More Dependable Source of Supply . . . . A Product that will secure for you a list of customers more satisfied with a fuel giving trouble-free and efficient service . . . . try Carter Propane and Butane.

Write for complete information to: The Carter Oil Company, Marketing Department, Room 928, National Bank of Tulsa Building, Tulsa, Oklahoma.

DEHYDRATED

Propane and Butane

THE CARTER OIL COMPANY

TULSA, OKLAHOMA

Shipping Points: Seminole, Okla., Stonewall, Okla., St. Elmo, Ill.

WHOLESALE ONLY!

INVESTIGATE!

SPRAGUE No. 0

a NEW, SMALL meter designed specifically for the measurement of L-P Gases. Rugged, made of cast iron, and simplified in construction. Delivers at ½" W.C., 60 cu. ft. Propane, 55 cu. ft. Butane.

Write now for Bulletin 23-A

SPRAGUE METER CO. BRIDGEPORT, CONN.

DAVENPORT, IOWA • HOUSTON, TEXAS • LOS ANGELES, CAL. • SAN FRANCISCO, CAL. • ST. LOUIS, MO.

Rock Port (Mo.), Newspaper Installs Butane Gas System

The gasoline-burning and electric pots which *The Mail* (Rock Port, Mo., newspaper) has had in use on its two linotypes since the machines were first installed have been replaced by burners which use butane gas furnished by The Gaservice Co., of Clarinda, Mo., which also installed the storage tank and connections. With the use of LP-Gas, the management expects to effect a saving as well as take advantage of an improved heating element in melting metals.

Butane will also be used for the newspaper's casting machine in which each week's accumulation of used slugs is melted down and cast for reuse. Before the installation was made, other butane systems in newspaper offices of Northern Missouri were inspected and their owners were consulted. Favorable results were found in every instance.

◆ ◆

20 Times More Fires Caused By Electricity Than by Gas

Continuing its effort to estimate the number, and classify the causes, of U. S. fires, the National Fire Protection Association has published its figures covering the year 1940. Basing its study on data received from 14 states and extending these to cover the nation, the Association estimates that there were a total of 725,000 fires in the United States during 1940, causing a loss of $290,000,000.

Some of the principal fire causes are shown in Table 1.

Gas and gas appliances are far down the list, being estimated to have caused 3500 fires, with a loss of $1,800,000. This is less than ½ of 1% of the total.

◆ ◆

G. L. McBride Installs Bulk Storage Tank at Blythe, Calif.

G. L. McBride, Rockgas distributor in Blythe, Calif., and vicinity for 17 years, has announced completion of a new bulk distributing plant. It is constructed on property just across the irrigation canal from the McBride home on West Hobsonway at the west city limits and consists of a 3000-gal. storage tank, set up on a concrete framework, and compressors, motors and other machinery for operation of the plant.

The plant represents an investment of more than $5000, and from it will be served customers in the Palo Verde valley.

◆ ◆

Hugh Knox Buys Bottle Gas Filling Plant in Vega, Texas

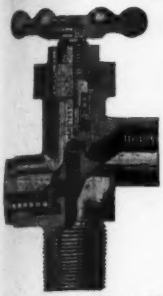
Hugh Knox has purchased the propane bottle filling plant formerly owned by H. H. Welmhold in Vega, Texas.

Mr. Knox has moved the plant to his property and will serve butane and propane bottled gas to the surrounding community.

TABLE 1. CLASSES OF FIRES

Causes	*No. of Fires*	*Per cent of Total*	*Loss in Millions*
Smoking	106,000	14.6	18
Electricity and Electric Appliances	72,000	9.9	26.3
Sparks on Roof	62,000	8.5	11
Defective or over heated chimneys.	58,000	8.0	17.5
Defective or over heated equipment	45,000	6.2	15
Lightning	30,000	4.1	7.5

ON GUARD



AT ALL TIMES IS THE

KEROTEST

PROPANE-BUTANE CYLINDER

VALVE

For controlling Propane-Butane gases *accurately*, depend on the Kerotest Propane-Butane Cylinder Valve. It's *safe* and extra-durable.

Write for Catalog.

KEROTEST

KEROTEST MANUFACTURING COMPANY
PITTSBURGH PA

Order These Famous L. P. Gas Products From Us . . . .

REGO LAP GAS

The BASTIAN-BLESSING Co.

THE DAYTON-DOWD CO.

Hackney
BUTANE PROPANE CYLINDERS

L.C. RONEY INC.

The IMPERIAL BRASS MFG. CO.

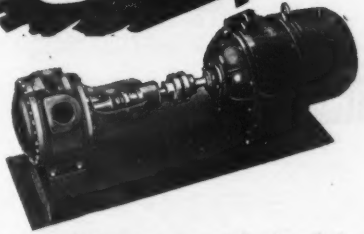
GAS EQUIPMENT CO., INC.
2620 South Ervay Street, Dallas, Texas

GAS EQUIPMENT SUPPLY CO.
1157 West Peachtree Street, Atlanta, Georgia

Repeat Orders

of Smith Butane Propane Pumps

Tell a Definite Story!



Butane and Propane cannot be handled satisfactorily with just "any" pump. SMITH Pumps are designed and built for this job. A balanced rotary gear construction avoids the usual internal friction and wear. A glycerine-sealed packing box eliminates that troublesome leak. These are exclusive features and there are no substitutes.

8 Models for Every Purpose

SMITH PRECISION PRODUCTS CO.
1135 Mission St. South Pasadena, Calif.

SMITH
BUTANE-PROPANE
PUMPS

THOMAS TRUCK of Keokuk

DOUBLE-DUTY HAND TRUCK

FOR

Cylinders

Cradle constructed to handle cylinders up to 100 lbs. capacity . . . Tapered body gives serviceman ample room between handles. All welded steel construction.

Appliances

Wide Bottom flanges give perfect support for appliances. Web strap (optional) holds appliance rigidly to truck, permits one-man operation.

No. 77

10-inch, ball bearing, puncture proof cushion pneumatic tires prevent damage to lawns—provide easier rolling on hard surfaces. Write for prices and descriptive folder today.

THOMAS TRUCK and CASTER CO.

4162 Mississippi River Keokuk, Iowa

ALGAS BUTANE PROPANE

CARBURETION

Algas for Defense!

Algas Butane installations and Algas Carburetors do their part for defense in speeding industrial operations, giving longer life to motor fleets, saving man hours and replacement parts.

Whatever your Butane problems consult

American Liquid Gas Corp.

LOS ANGELES CHICAGO

ANSWERS

To Chapter 6 The Bottled Gas Manual

Here are the answers to the questions on Page 52 and which refer to problems in Chapter 6 of THE BOTTLED GAS MANUAL:

1. By the fire insurance companies of the United States.
2. No.
3. At least five feet from any opening into the building at a level below the opening.
4. The A.G.A. Testing Laboratories, or other competent laboratory recognized by the enforcing authority having jurisdiction.
5. 125 lbs.
6. Cast iron.
7. Only when they are connected to a propane system.
8. Technically no, as the porch is a part of the building.
9. A. Conformity to regulations.
   B. The customer's preference.
   C. Ease of service.
   D. Saving of effort and expense.
   E. Requirement of the least amount of exposed piping within the building.
10. A good fireproof foundation for the bottles.

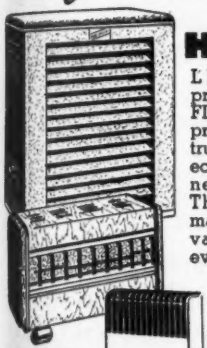
◆ ◆

Jack Griggs is Distributor For LP-Gas in Tipton, Calif.

Jack Griggs, formerly of Exeter, Calif., has taken over the distributorship of an independent firm's butane products in Tipton, Calif., according to a recent announcement.

Lewis Cadona will handle the outside sales.

IN TEXAS IT'S
THE BUTANE COMPANY
for
WHOLESALE DELIVERIES
DIRECT TO YOUR BULK
STORAGE PLANT.
the BUTANE Company
• BROWNWOOD, TEXAS
WHOLESALE TRANSPORTERS—DISTRIBUTORS OF BUTANE

Profit Building
LPG
HEATERS

LPG Dealers find real profit in BRILLIANT FIRE sales because the product is time-tested, trustworthy. Geared for economy operation and negligible servicing. These popular heat-makers are offered in a variety of styles for every home need.
Write for Catalog
Brilliant Fire GAS HEATERS
THE OHIO FOUNDRY & MANUFACTURING CO.
QUALITY HEATING EQUIPMENT SINCE 1846
STEUBENVILLE, OHIO

COMPLETE
FACILITIES
BUTANE
or
PROPANE
Vitally important to every retail marketer of these products, is a dependable and reliable source of supply. Such assurance is yours when you buy Philgas Butane or Propane. Without qualification, Philgas has the most complete production, storage and shipping facilities in the industry. Philgas service gives you high-quality products produced according to rigid specifications plus deliveries when, where, and as you want them.
Philgas
DIVISION
PHILLIPS PETROLEUM COMPANY
GENERAL MOTORS BUILDING
DETROIT, MICHIGAN
NEW YORK — MILWAUKEE
PHILADELPHIA — ST. LOUIS
CHICAGO — AMARILLO
BARTLESVILLE, OKLA.
THE NATION'S LARGEST MARKETER
OF LIQUEFIED PETROLEUM GASES

Industry Is Cooperating With Oklahoma Administrator

Carl C. Garner, Oklahoma liquefied petroleum gas administrator, and his inspectors are receiving fine cooperation from LP-Gas men throughout the state in the enforcement of new rules and regulations affecting the industry, which became effective Oct. 13. Copies of the regulations are now available for dealers and distributors.

James Archer, chief inspector for the administrator, reports that this cooperation goes to the extent of willingly aiding in enforcement. Dealers and distributors are reporting violations which come to their attention and are complying with all safety provisions of the regulations as rapidly as they learn what these are.

On a recent trip through the state Mr. Archer ordered some changes made in several installations. "These installations had been made before the new law and regulations went into effect and owners of the equipment expressed entire willingness to make suggested changes in the interests of greater safety," Mr. Archer said.

◆ ◆

Plan Laboratory to Survey Uncharted Hydrocarbon Fields

Plans are nearing completion for a new materials testing laboratory for the National Bureau of Standards at Washington, D. C., in which research workers may carry on the work of isolating and identifying hydrocarbons in petroleum. The undertaking is sponsored jointly by the Bureau and by the American Petroleum Institute as API Research Project No. 6, and is supervised by Frederick D. Rossini.

The new laboratory is designed to make possible further exploration of the uncharted field of petroleum hydrocarbons. It is known that an infinite number of these chemical combinations exist, but it remains for the researchers to isolate and identify them and for others to ascertain to what practical purposes they can be put.

The project is one of many started by the Institute about 1926 through underwriting by the late John D. Rockefeller and the Universal Oil Products Co., Inc., of Chicago.

◆ ◆

Berryville, Ark., Dealer Would Serve Butane on Utility Basis

Distribution of butane gas in Berryville, Ark., would become a public utility under a plan submitted to the Arkansas State Department of Public Utilities recently by J. Paul Maples, operator of the Butane Service Co., Berryville, who has filed an application for a permit to operate a butane gas distribution system in that city.

The application pointed out that at present butane systems are individually installed, with a separate tank being provided for each customer. Under Mr. Maples' proposal, the fuel would be vaporized in several centrally located tanks and delivered to the customers through underground mains. The amount used would then be measured by meters in the same manner as natural gas.

A franchise from the city of Berryville has already been granted.

◆ ◆

San Diego Aircraft Plant Makes Butane-Air Installation

A butane-air-mix gas plant has been installed in the new parts plant of the Consolidated Aircraft Corp., San Diego, Calif. The new parts plant, built since December, 1940, was erected to enable the company to fulfill defense contracts amounting to more than $750,000,000 and to provide for future demands.

PITCO
Frialators
REG. U.S. PAT. OFFICE

ARE DUAL USAGE
L. P. GAS APPLIANCES

Deep-Fat Frying at Its Best

★ Customers can serve a wider variety of fried foods.
★ Left-overs or by-products quickly converted into daily specials.
★ Increase in customer business means increase in the gas load.
★ Actual saving in fat alone more than pays total cost of gas required to operate them.

Send for 1942 Illustrated Catalog.

J. C. PITMAN & SONS
INCORPORATED
711-719 Broad St. Lynn, Mass.

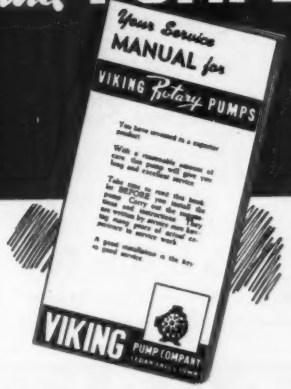
L.P.G. Dealers Attention
BE
PREPARED
FOR
SUB-ZERO
Temperatures

Use our
Winter Grade
BUTANE-PROPANE
Mixtures.

Long term contracts solicited.

Clute Petroleum
Company
National Bank of Tulsa Bldg.
Tulsa, Okla.

This Little Booklet
MAY Save YOU
TIME, MONEY
and PUMPS



When pumps are hard to get it's wise to take good care of the ones you have. The Viking Service Manual is a handy, illustrated booklet that tells you how to get utmost performance out of Viking Rotary Pumps. It explains and pictures correct installation . . . shows you how pumping efficiency may be stepped up . . . suggests how some repairs and replacements may be avoided.

Gain valuable help in your pumping operations by consulting the Viking Service Manual. It is offered to you FREE. Your request for a copy will be filled by return mail.

VIKING PUMP COMPANY
CEDAR FALLS, IOWA

GREENHOUSE HEATERS

Model No. 210 NV

Greenhouse Owners

Welcome This Modern, Inexpensive Method of Heating with LP-Gas.

Write to

F. & E. Mfg. Co.

P. O. Box D Centerville, Calif.

MOORE'S
COMBINATION RANGES
for SUMMER or WINTER FUEL

MOORE'S COMBINATION FEATURE:

- Coal or oil and LP-Gas
- 2 or 4 coal or oil covers
- Full oven size on all fuels
- 4 gas top burners
- No dampers to operate
- No baffles to handle

THE MOORE CORPORATION
Quality Since 1857 JOLIET, ILLINOIS

Eastern Section Meets Jan. 22-23

THE annual winter meeting of the Eastern Section of the Liquefied Petroleum Gas Association will be held in New York City January 22-23, 1942, it has been announced by Plummer Pope, Chairman. It is probable that the Hotel Pennsylvania will be the scene of the convention, according to Adam Johnstone, secretary of the section.

Inevitably, the program will be devoted primarily to the position of the industry in war activities, with the report of the Defense Coordinating Committee scheduled as the first order of business for the Thursday afternoon opening session. The delivery of this report will be followed by a business meeting at which the Section officers for 1942 will be elected.

Two subjects slated for Friday morning discussion are: "Operating Plans for the Duration of the War"; and, "Safety Regulations." Carl Sorby will discuss the subject of "National Advertising and Gas Appliance Promotion" in the Friday afternoon session. Pictures on the handling of LP-Gas fires will be shown at the same meeting, and the closing event will be a question-and-answer period.

The registration fee for nonmembers of the Association will be $25 for every individual; while that for members has been tentatively set at $3.50.

HEALTH "PRIORITIES" FOR L. P. G. USERS

L.P.G. dealers praise the economy and automatic performance of PACIFIC Gas Heating Appliances. They know that Pacific's complete L.P.G. line is engineered to fit today's L.P.G. needs exactly. Now, with National attention focused on conservation and health, dealers can capitalize on the time-tested operation economy and automatic, healthful temperature control of Pacific heaters.

Investigate the profit possibilities of the PACIFIC line today.

PACIFIC GAS RADIATOR CO.
Huntington Park, California

NATIONAL Thermo-Syphon SYSTEM

and

National Automatic Gas SYSTEM

Patented Systems
Protected Territories

Write or Phone

National Butane Gas Co.
MEMPHIS, TENNESSEE

How To Start A Business Of Your Own

Where the gas mains stop . . . your opportunity starts . . . by taking advantage of the quality, service and facilities offered you by Warren's twins of heat and power—Butane and Propane. Under modern scientific control Warren products are produced in 18 plants in 7 states.

The constant high quality of Warren LP-Gas makes it ideal for cooking, refrigeration, heating — many, many home uses. Industries, too, use Warren Propane and Butane for quick, clean, inexpensive fuel for both heat and power. Hospitals, bakeries, schools; all these and many more will appreciate the advantage of this new type of gas service.

We are Partners—Not Competitors of Our Customers

Write or Wire

WARREN PETROLEUM CORP.
Tulsa, Oklahoma

New Los Angeles Plant Opened By Continental Water Heater

Celebrating the opening of their new showroom and factory at 1801 Pasadena Ave., Los Angeles, officials and employes of the Continental Water Heater Co. were hosts to their friends throughout the industry on Dec. 13.

Many of those attending the open house remembered the first birthday party held by the company in 1931. Since that time the company has expanded rapidly and now distributes water heaters in all of the western states and many of the eastern and southern states. Representatives and warehouses are located in Seattle, San Francisco, Kansas City, Fort Worth and New Orleans.

The present officers of the company are Wayne R. Smith, president; K. Eisinga, vice president, and D. Shepherd, secretary. Financially interested in the company are John Wilson and Dirk Eisinga, of Seattle, president and secretary of the National Steel Construction Co., manufacturers of gas heater tanks for the exclusive use of the Continental Water Heater Co.

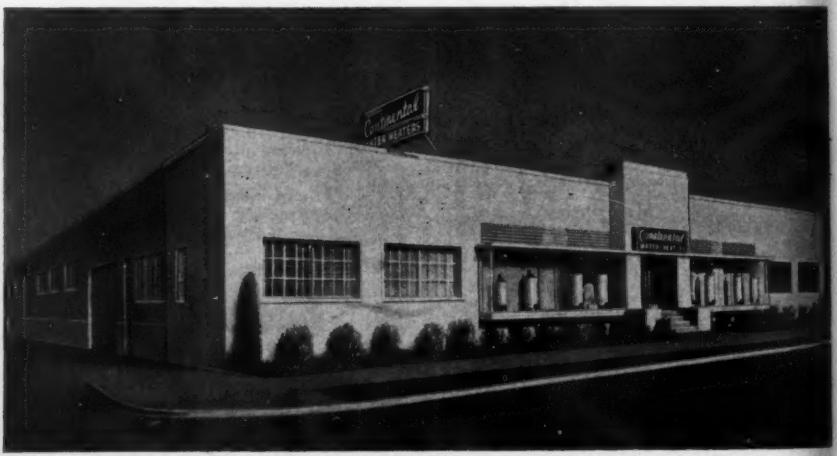
The new building, of modern design, covers an acre and a half site with 25,000 sq. ft. of floor space. Modern lighting is a feature of the factory and a large showroom is available for merchandise display. Officials state that the new factory is open for inspection at all times.

◆ ◆

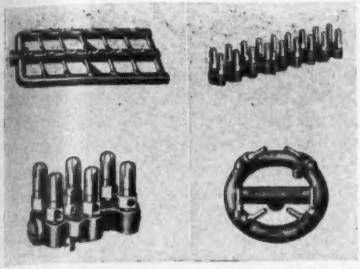
C. C. Morris Enters Fifth Year As Sherman, Texas, Dealer

C. C. Morris, owner of the Morris Butane Gas Co., at 106 So. Elm, Sherman, Texas, recently began his fifth year as LP-Gas dealer in Grayson county, Texas. Since it was organized in the fall of 1937, the Morris Butane Gas Co. has installed 260 butane gas systems in that county.

The company is equipped to supply and service Roper ranges; gas heaters and appliances; water heaters, and Servel Electrolux refrigerators. J. W. Keller is salesman and James A. Barnett is service man for the company.



The new plant of the Continental Water Heater Co., Ltd., Los Angeles.



BARBER

Appliance Burners

We make many types of Burner Units to fit a wide range of gas appliances. Nearly 200 appliance makers use Barber Burners. All Barber units correctly designed and equipped with proper jets to suit the appliance. Barber is the ONE burner which assures complete combustion on Butane-Propane or ANY OTHER gas. Appliance builders and fuel distributors give their customers better service, more economy, by advising the use of Barber-equipped appliances. Submit your burner problems to us. Complete new Catalog on request.

THE BARBER GAS BURNER CO.

3704 Superior Ave. Cleveland, Ohio

McNAMAR Tanks

- TRUCK TANKS
- TRANSPORTS
- SKID TANKS
- STORAGE TANKS
- UNDERGROUND SYSTEMS

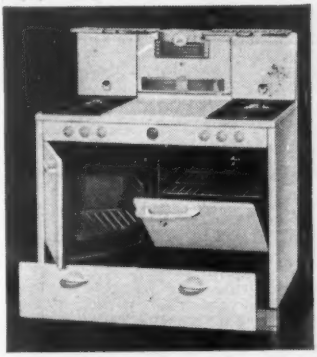
All tanks ASME U-69, inspected by Ocean Accident & Guarantee Corp., Ltd.

McNAMAR

BOILER AND TANK COMPANY

Tulsa, Oklahoma Salem, Illinois

WHAT *Magic Chef* QUALITY MEANS TO YOU IN 1942



THE people who have money to spend in times like these are looking for strength and durability. In everything they buy they're looking for products that will give maximum use and maximum quality. They have the money to pay for it.

That's why Magic Chef's long years' of experience in the manufacture of gas ranges of unsurpassed quality fits perfectly into the merchandising profit pattern for 1942. And the experience of thousands of satisfied users, plus years of emphasis on LP-GAS cooking in millions of advertising messages in national magazines, has built up an unequalled consumer-acceptance of Magic Chef as the first-in-quality gas range for LP-Gas.

The Magic Chef Research Laboratory has devoted years of study to the development of modern ranges, built especially for use with LP-Gas. In some areas the Magic Chef franchise is still open. Write today for details.

AMERICAN STOVE CO.

4301 Perkins Ave. Cleveland, Ohio

4 NEW OUTSTANDING FEATURES IMPROVE THE PROVED B-60 GAS VALVE

1. **COMPACT, TAMPER-PROOF COVER** — Securely held . . . No external gas ways.
2. **INTEGRAL PILOT VALVE ASSEMBLY**—Accessible . . . Easily tightened . . . Rigid vent connection.
3. **NEW, STRONGER VALVE BODIES**—Hi-Tensile iron . . . Increased seating pressure . . . Maximum capacities.
4. **BINDING POSTS SECURELY LOCKED**—Prevent turning; terminal connections can be made with screwdriver.

All B-60 Gas Valves now furnished with heavy-duty pilot generator for use with liquefied petroleum gases.

GENERAL CONTROLS

450 E. Ohio St. Chicago, Ill. — 267 5th Avenue New York City

Distributors and Stocks in All Principal Cities

How to Obtain

YOUR UTILITY ALL-WEATHER BUTANE SYSTEMS WITHOUT LONG DELAY!

Priority can be obtained on butane systems used in defense housing projects and many other important defense activities. Why not get your priority certificates now so as to hasten the delivery of your Utility All-Weather Butane Systems. Write your nearest O P M office.

BUTANE EQUIPMENT CO., INC.

DALLAS, TEXAS

Phone Harwood 2146 — 3301 S. Lamar

Los Angeles Fire Department Proposes LP-Gas Ordinance

For several months the Los Angeles Fire Department has been drafting a proposed ordinance covering the manufacture, mixing, storing, blending and dispensing of liquefied petroleum gas within the city limits. The work has been under the direction of Capt. J. R. Hatfield, John H. Alderson, chief engineer and Henry R. Boone, fire prevention engineer.

A number of meetings have been held with representatives of the various branches of the LP-Gas industry and interested parties invited to offer suggestions. In general, the tentative draft closely follows the proposed orders of the California Industrial Accident Commission.

The semi-final draft of the proposed code has been published and comments upon it may be made to the fire department as late as Dec. 29. A final meeting is scheduled for the first week in January.

◆ ◆

Los Angeles County Butane Company Incorporates

Articles of incorporation have been filed by the Butane Appliance and Gas Co. Named as directors of the company are L. C. Teegarden, John K. Ford, and Mildred Westling, all of Los Angeles. The capital stock is $25,000, all subscribed.

It is the announced intention of the company to operate in Los Angeles County.

◆ ◆

Mariposa, Calif., High School To Install Butane System

At a recent meeting, the Mariposa (Calif.) County high school board decided to install butane as fuel for the cafeteria and gymnasium of the school. Fred Bradshaw was authorized to make the change on contract.

YOU'LL BE BUSY

No. 6190 A

As a draftee on the Saturday after payday if you stock up on this improved Peerless Radiant Circulator now. Unvented, with 5 double radiants, its output is 20,000 B.T.U.'s. Attractively finished in two-toned brown porcelain enamel. Approved by A.G.A. for use with liquefied petroleum gas. Order today.

PEERLESS
Manufacturing Corporation
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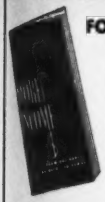
ROBERTSHAW MANUALS
will help increase your sales



FOR DOMESTIC SALESMEN

"More Income from Gas Ranges"

How can your salesmen sell more gas ranges? This manual shows simply, graphically, convincingly. Thousands of salesmen have greeted it with enthusiasm, are putting it to effective use.

FOR COMMERCIAL SALESMEN

"Hidden Losses in Your Kitchen and How to Stop Them"

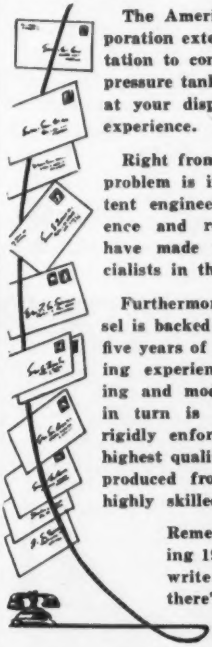
The latest developments in commercial gas cooking equipment are brought together in this manual, now used by many bottled gas dealers.

Write for free copies

ROBERTSHAW THERMOSTAT COMPANY
YOUNGWOOD, PA.

AMERICAN'S LONG YEARS OF EXPERIENCE *IS YOURS*

VIA PHONE — WIRE OR LETTER



The American Pipe & Steel Corporation extend to you an open invitation to consult with their staff of pressure tank experts who will place at your disposal years of valuable experience.

Right from the start your storage problem is in the hands of competent engineers, whose long experience and record of achievements have made them outstanding specialists in their field.

Furthermore, their advisory counsel is backed by American's twenty-five years of specialized manufacturing experience—scientific engineering and modern equipment; which in turn is backed by American's rigidly enforced policy of assuring highest quality products that can be produced from finest materials by highly skilled master-craftsmen.

Remember this invitation during 1942 . . . 'phone, wire or write . . . Consult American, there's no obligation.

AMERICAN
PIPE & STEEL CORPORATION
Manufacturers and Distributors
ALHAMBRA . . CALIFORNIA

Multnomah Fuel Co. Features Resort Service in Oregon

Recently placed in service by the Multnomah Fuel Co. of Portland, one of Oregon's first LP-Gas companies, a new butane delivery truck hauls many thousands of gallons each month to the company's growing list of customers scattered throughout the Portland area.

It is equipped with two 550-gal. butane tanks for delivery and one 100-gal. butane tank to supply fuel for the motor.

Many deliveries are made to tourist resorts and cottages, according to D. H. Slocum, gas sales manager for the company. In the accompanying picture, near Cannon Beach, Ore., the truck is making a delivery at one of the seaside resorts where butane supplies fuel to 10 cottages. The delivery is being made into an underground Hydrogas system.

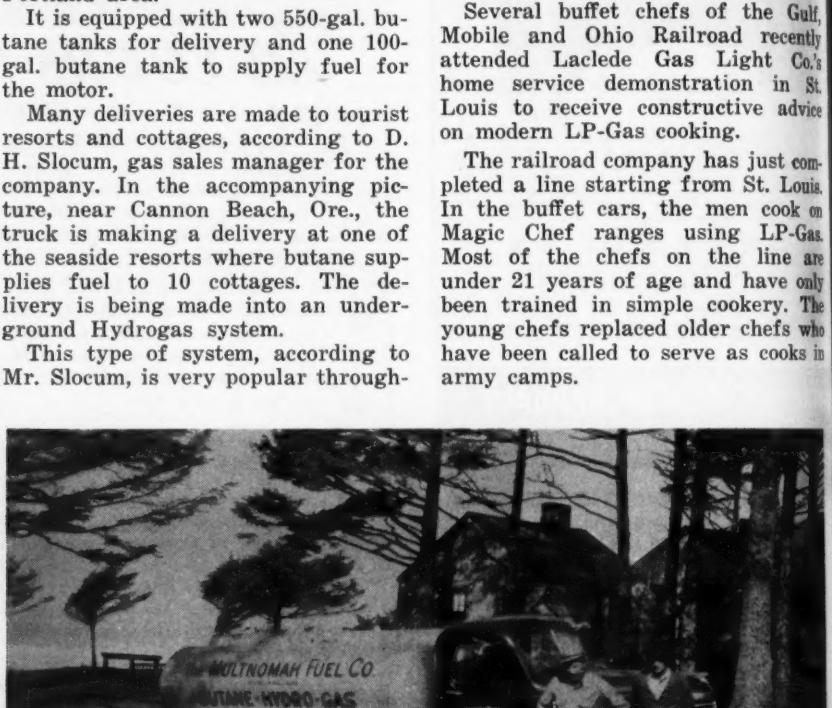
This type of system, according to Mr. Slocum, is very popular throughout this territory and is widely used for domestic installations. Butane is used in the cottages for space heating, water heating and cooking. Most of their installations are sold as a unit and include all three appliances.

◆ ◆

Railroad Chefs Learn Modern LP-Gas Cookery From Laclede

Several buffet chefs of the Gulf, Mobile and Ohio Railroad recently attended Laclede Gas Light Co.'s home service demonstration in St. Louis to receive constructive advice on modern LP-Gas cooking.

The railroad company has just completed a line starting from St. Louis. In the buffet cars, the men cook on Magic Chef ranges using LP-Gas. Most of the chefs on the line are under 21 years of age and have only been trained in simple cookery. The young chefs replaced older chefs who have been called to serve as cooks in army camps.



The delivery truck of the Multnomah Fuel Co., Portland, Ore. It is equipped with two 550-gal. butane tanks for customer service and one 100-gal. tank to supply butane for the truck motor.

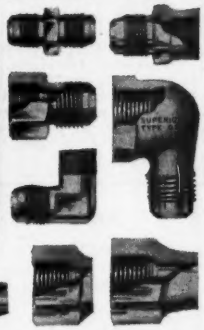
Superior FLARE FITTINGS

Especially for

L. P. G. INSTALLATIONS

SAE (Flare) Unions, Couplings, Adapters, Elbows, Tees, Crosses and Nuts

Listed as Standard by UNDERWRITERS LABORATORIES, INC.



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1509 WEST LIBERTY AVENUE
PITTSBURGH • PENNSYLVANIA

For *CONTINUING* Profits

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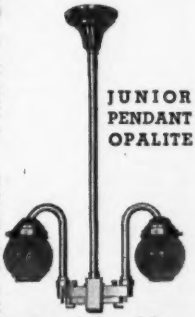

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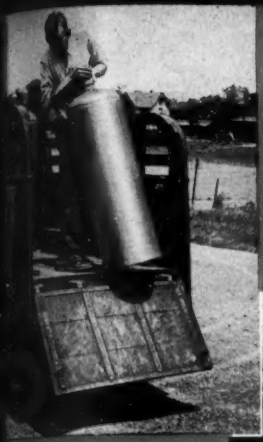

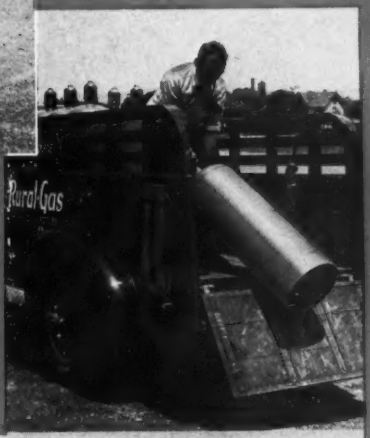

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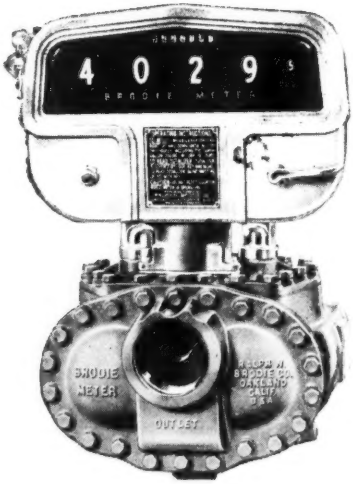

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